

SD Times

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● SOFTWARE DEVELOPMENT

SPECIAL REPORT

What Can Be Done About
Software Security?

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IBM Extends ALM With Acquisition of Telelogic

US\$745 million purchase adds embedded tools

BY JEFF FEINMAN

With IBM's expected acquisition of development tool maker Telelogic for US\$745 million, one industry expert said that IBM Rational might be taking steps to redefine ALM. At the same time, executives at competing companies said the acquisition is a way for IBM to strengthen parts of its ALM offering.

IBM is making a long-term bet that the requirements of the embedded world are going to converge with those of the traditional IT space. Telelogic's prod-

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uct line covers a broad range of software used in developing complex embedded systems such as aircraft radar and antilock braking systems. Those tools include the Doors requirements management family, the Rhapsody systems engineering environment, the Synergy change and configuration management suite, and the Tau modeling environment.

Upon the close of the acquisition, Telelogic will become part of the IBM Rational business

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Europa Release Marks Major Eclipse Overhaul

BY ALEX HANDY

The Eclipse Europa simultaneous release, which includes version 3.3 of the Eclipse IDE and updates to 21 projects, was set to be released to the public in late June.

Eclipse IDE 3.3 includes a new keystroke-based way to step through method collections, new ways to handle unresolved names, and the ability to browse objects in a Java Virtual Machine when running Java SE 6.

But with 21 companion projects included in part of Europa, it's a sure bet that one's favorite tools are back again with new capabilities. While standbys such as the Business

Intelligence and Reporting Tools (BIRT) suite and the Test and Performance Tools Platform (TPTP) have returned with support for Windows Vista and Java SE 6, new tools are also on board with their own bells and whistles.

Mike Milinkovich, executive director of the Eclipse Foundation, noted that two of the newest Eclipse tools have brought some of the most interesting updates to the Europa release.

The first, a workflow tool formerly known as Mylar, has been renamed Mylyn to avoid trademark issues. With the release of Mylyn 2.0 as part of Europa, the

tool enhances its ability to view workflows as tasks. "This is one of the really interesting projects at Eclipse for the individual Java developer," said Milinkovich. "It gives instant access to a task UI, and integrations with tools developers constantly use, like Bugzilla and Jira."

Another new unit of the Europa release, the SOA Tools Platform, is arriving just a few months after it was first announced. "It's a pretty interesting feature set for a 1.0 release," Milinkovich noted, adding that it offers JAX-WS service development, a BPM dia-

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Tech-Ed 2007: No Overarching Vision

BY DAVID WORTHINGTON

ORLANDO, FLA. — Microsoft stayed on message at this year's Tech-Ed held here about its current, and soon-to-be-delivered, platforms, applications and tools, but when questioned about the future, like a Magic 8-Ball it answered, "Better not tell you now." Spokesperson after spokesperson finessed their way around discussing the company's "vision," and refused to discuss the company's future products. But even if the discussions were short of predictions, a series of technical breakout sessions, seminars and classes engrossed developers in all things Microsoft.

Bob Muglia, senior vice presi-

**TECH-ED
WRAP-UP**
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Microsoft's Bob Muglia shares the stage at Tech-Ed with car from 'Back to the Future,' an authentic DeLorean DMC-12.



dent of Microsoft's server and tools business unit, kicked off Tech-Ed 2007 with his June 4 keynote. Sharing the stage was "Back to the Future" movie actor Christopher

Lloyd, who, armed with his "MS-BS detector" and an authentic DeLorean DMC-12, spirited Muglia into the past to avoid the

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Adobe's Apollo No Longer Up in AIR as Runtime Debuts

BY DAVID RUBINSTEIN

To take advantage of the reach of the browser, but to get beyond its limitations, Adobe Systems in mid-June released the first public beta of a new desktop client runtime. It also unveiled a beta of the Flex 3 development environment, with the first steps taken toward taking the project open source.

Adobe Integrated Runtime (AIR) is the formal name given to the Apollo runtime project, and it now has transparent HTML support—meaning developers can move beyond the browser chrome to create a cus-

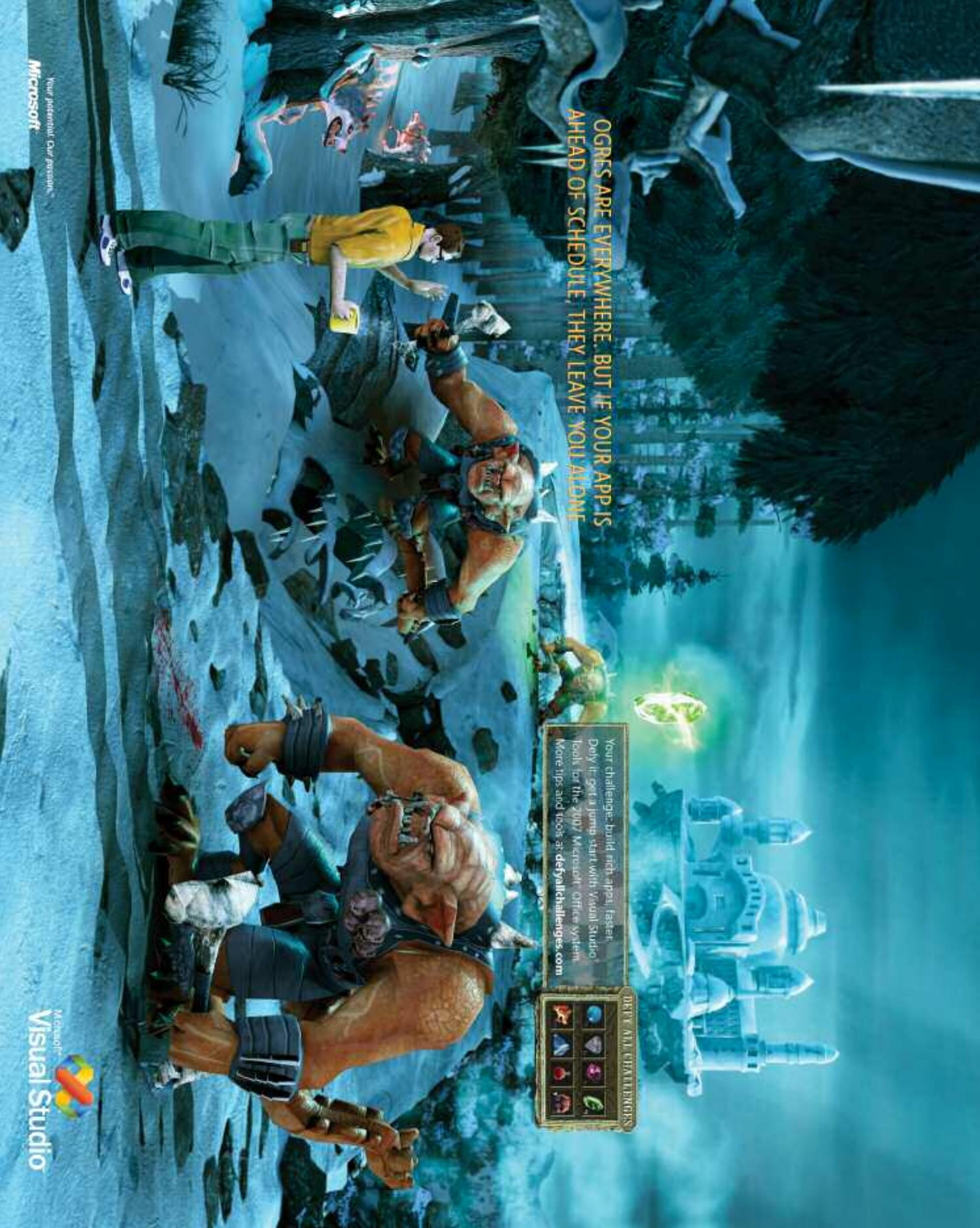
tom look-and-feel for Web applications. It also now works with AJAX, has the ability to work with multiple windows, and possesses drag-and-drop capability. SQLite is now part of the runtime, so data can be cached locally.

"Web applications have gravitated to the browser for two advantages—they have reach, and they are more approachable to a broader developer base," said AIR senior product manager Mike Downey. But [rich Internet applications] are limited running inside a browser. So, how do you

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DEFY ALL CHALLENGES

Leopard Prowls at Apple Confab

Developers get previews of OS update, new Safari ports and iPhone

BY P.J. CONNOLLY

Apple's Worldwide Developers Conference kicked off in San Francisco on June 11 with the traditional Steve Jobs keynote, and more than 5,000 people attending the show at the Moscone West exhibition hall.

The address included previews of the iPhone, which was expected to ship in late June, and the Mac OS X 10.5 "Leopard" release, which is due in October. Developers took home a feature-complete beta version of the operating system and the accompanying Xcode 3 developer tools. Jobs also unveiled beta versions of the Safari browser for both Mac OS X and Windows users; both are due to ship in the same time frame as Leopard.

The company also clarified its position on third-party applications for the iPhone: Web-only, thank you very much, sums it up. Developers will have to design their applications around Web 2.0 services, because the device will not allow the installation of outside application code, in hopes of ensuring both security and stability, Jobs noted.

The keynote audience was reported to have taken this announcement with a groan, although the approach does offer the advantage of simplified software deployment.

The Safari 3 update is claimed by Apple to render Web pages twice as fast as Microsoft's Internet Explorer 7, and 60 percent faster than Mozilla Firefox 2, based on tests performed with iBench. The beta version of Safari 3 is available now for download, and runs Windows XP or later, as well as Mac OS X 10.4.9 "Tiger" and later.

The Leopard preview focused on end-user features, including file sharing and GUI enhancements, updates to the iChat instant messaging and Mail applications, and the Time Machine backup and restore features. But Jobs also pointed to Leopard's full native 64-bit support that allows 64-bit applications to run alongside existing 32-bit Mac OS X applications, and he highlighted the forthcoming release's multicore optimization and scheduling features.

The server version of Leop-



Mac OS X 10.5 'Leopard,' due in October, offers a number of user interface enhancements, including more transparency for Finder objects, a three-dimensional Dock, and Stacks, which allow flexible document organization.

ard will include new tools such as a CalDAV-based iCal Server that provides calendar information via WebDAV, Podcast Producer for publishing podcasts to blogs or iTunes, and a wiki server.

The new Mac OS X release will also offer an update to the Xcode development tools,

including a new editor, simpler debugging and support for Objective-C 2.0. The new Interface Builder will enable developers to add advanced animation effects to applications, while the DashCode tool will let users create Dashboard widgets without writing any code. Developers using Leop-

ard will also have access to the new Dtrace-based Xray application optimizer.

Jobs also announced that Apple's developer network had grown by 200,000 in the past year; at the latest count, the Apple Developer Connection membership is up to 950,000. ■

Automating the Virtual Testing Lab for Fun and Profit

Virtualization gives QA staff the next best thing to production systems

BY P.J. CONNOLY

Virtualization technology has been in use for a while, at first on the mainframe in the data center, and gradually becoming useful on the commodity servers in the racks.

Thanks in no small part to

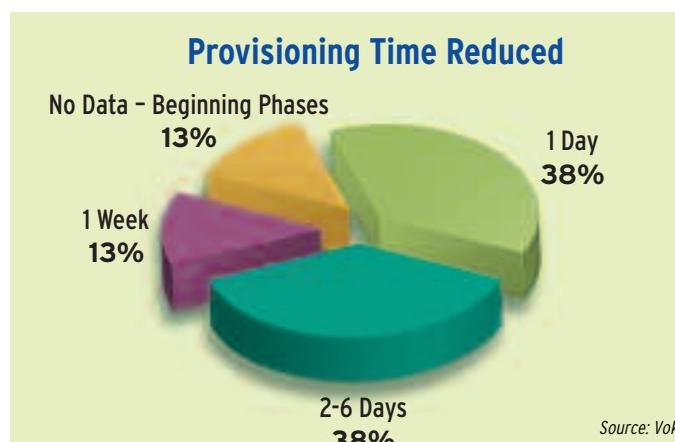


Virtualization gets users close to production, says Voke's Lanowitz.

the rapid evolution and acceptance of EMC's VMware platform, developers and testers have found virtualization useful in stretching their lists of usable platforms, by allowing them to test against system images from different operating system configurations that would be cost-prohibitive to manually install and configure.

But the next step in using virtualization as a development and testing tool is automating its use in the lab. Theresa Lanowitz, founder of analyst firm Voke, recently discussed her firm's Market Snapshot report on virtual lab automation, released earlier this year.

Lanowitz began by explaining that although server consolidation has been the big sell for virtualization, there is a much broader role for it in the enterprise. She said pressures for



According to research by analyst firm Voke, just over half (51 percent) of those surveyed responded that they were able to reduce lab provisioning time by two days or more.

improved software quality and lower time-to-market, as well as the increasingly outsourced nature of today's IT landscape, are causing developers and testers to consider virtualization as plumbing, instead of as a

novelty. Virtual lab automation, she noted, "gives to the quality assurance person, the test person...the ability to have an environment as close to production as possible."

For companies that had

made any serious effort to provide testing facilities to those people, Lanowitz noted, "it was really time-constraining and resource-intensive from a monetary perspective to be able to maintain those labs. And in some cases, they said, 'This is just too much for us to do.'"

Lanowitz observed that a situation with three environments—the developer environment, the test environment and ultimately the production environment—leads only to unnecessary finger-pointing and harsh words between people who often work for the same IT organization.

"What virtual lab automation really brings to the game is that the tester can take a virtualized image of the production environment," she said, adding

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COVERITY FINDS THE DEADLY DEFECTS THAT OTHERWISE GO UNDETECTED.

Your source code is one of your organization's most valuable assets. How can you be sure there are no hidden bugs? Coverity offers advanced source code analysis products for the detection of hazardous defects and security vulnerabilities, which help remove the obstacles to writing and deploying complex software. With Coverity, catastrophic errors are identified immediately as you write code, assuring the highest possible code quality—no matter how complex your code base. **FREE TRIAL:** Let us show you what evil lurks in your code. Go to www5.coverity.com to request a free trial that will scan your code and identify defects hidden in it.



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Electron Micrograph, 40K



Outrunning the Bears

In-house hackers help Web sites stay steps ahead by finding vulnerabilities before they are exploited

BY JEFF FEINMAN

The term "hackers" does not merely represent the villains that break into Web sites to do malicious things and steal important information. There are the white knights of the hacker society as well, scanning Web sites and conducting penetration tests to find vulnerabilities. Ethical hacking has become a security tool, as organizations seek out their vulnerabilities before the wrong sets of eyes find them.

BUGS FOR SALE

A developer for the open source Metasploit project, a computer security project that provides help and tooling for penetration testing, said that hackers are starting to sell the vulnerabilities they find because bugs are getting harder to find. The developer, who asked to be referred to only as Pusscat, said sale prices depend on what the bug is.

Pusscat and other developers contribute exploit code to Metasploit on an ad hoc basis. Exploit code is code that takes advantage of a software vulnerability to subvert some security mechanism, most usually to execute arbitrary code on the system within the context of that process.

"There's a lot of time and effort that goes into finding [vulnerabilities], and even more that goes into exploiting them," Pusscat said. "It's basically free work you're giving the company if you disclose the bug. The ones that get disclosed are usually disclosed by people who think they have more going for them in name recognition than in selling the bug."

Pusscat also said that hackers can achieve a great deal of fame and a stronger resume if they release vulnerabilities publicly.

Both Pusscat and Scott

Laliberte, director of security assessments for Protiviti, a provider of audit and technology risk consulting services, said most hackers follow the unwritten rule of responsible disclosure, which calls for informing the company and giving them the information you have on the vulnerability, while the company in turn gives a timeline for fixing the patch.

Sometimes the researcher and the company can negotiate an acceptable time line, with the researcher vowing to keep it quiet until that date, and the company crediting the researcher for finding it, according to Pusscat.

Laliberte told SD Times that most vulnerabilities are found in Web applications, including buffer overflows, cross-site scripting, SQL injections, and on occasion, missing patches. "We've done 'pen' tests, where basically we'll replicate a VPN [virtual private network] server, and sometimes the log-on page is susceptible to cross-site scripting," he said. "We can use that to craft an e-mail to try to get folks to reset their VPN passwords."

Laliberte said he uses a variety of tools, including Metasploit, the free security scanner Nmap, SPI Dynamics' application security assessment tool WebInspect, and Application Security's AppDetective, which assesses the security of databases. Laliberte also uses freeware tools, which are put through an internal certification process to ensure they are free of Trojan code and viruses. For good penetration testing, Laliberte said, one needs a good port scanner and the ability to write exploits. A good vulnerability scanner can help a penetration test in viewing most of a Web site very quickly, but the scanner is often picked up by today's network-based

intrusion detection systems.

Jeremiah Grossman, founder and CTO of Web security provider WhiteHat Security, said that in-house hackers are getting better at finding vulnerabilities on Web sites. On top of that, new technologies such as Microsoft ASP.NET are more secure than previous ones, Grossman said. The result is that fewer vulnerabilities are making it into production applications.

"It's best if a company gets the data ahead of [an attack]. Their site is going to be attacked whether they like it or not, so it's best if they know about vulnerabilities before the bad guys come along," Grossman said.

'SHOCK VALUE'

Penetration testing and ethical hacking may sound like a great way to detect vulnerabilities in theory, but how can someone with good intentions try to act and think like someone with bad ones?

"It has its place," Laliberte said. "I think pen tests are good for organizations that need the shock value. Replicating what a real-time attacker may do can carry a lot of shock value. It also tests response capability, enabling you to see how well people in an organization can detect an attack and respond."

Laliberte also said vulnerability assessment can be a good first step for less mature organizations, as it gives them some good knowledge of security vulnerabilities to watch for as they grow.

"What you're really trying to do is make it so difficult for the bad guy, that they're more willing to target the next Web site," Grossman said. "I think the bear-in-the-woods analogy applies to hacking as well: 'To outrun a bear, you have to outrun your friend.'"

NEWS BRIEFS

NEW PRODUCTS

Pegasystems has launched an exchange for the sharing of BPM and SOA-focused components and content. The **Pega Exchange** is intended to provide more than reference diagrams and sample code; founding participants in the exchange include Cognizant, Crosscheck Networks, HostBridge, Panorama Software, PrintSoft and Satyam Computer Services . . . Microsoft made the **Visual Studio Team Foundation Server-Project Server 2007 Connector** (PS-TFS Connector) available on CodePlex, its open-source software hosting site, in June. Future versions of Team System will offer built-in integration with Project Server . . . AtTask, a provider of on-demand project and portfolio management software, has released a **SOAP API** suite complete with a software development kit and a ready-made API for Microsoft Outlook. This allows organizations to update assigned tasks and jump to projects in AtTask from within Outlook.

UPDATES

AmberPoint, a provider of SOA runtime governance solutions, has released version 6 of **AmberPoint SOA Management System** and **AmberPoint SOA Validation System**. Both of the new products leverage Adobe Flex and AJAX, while the new version of the AmberPoint SOA Validation System now uses complete transaction flows to detect potential runtime anomalies . . . Kapow Technologies has released two new editions of the **Kapow Mashup Server** family. First is a Web 2.0 edition of its server, which allows the development of data-centric mashups on lightweight RSS feeds and REST services. The company also released the Content Migration Edition, which collects and converts source content in an automated way . . . After a seven-month beta program, Reportive unveiled the latest version of its namesake tools for building analytic and reporting applications. **Reportive V8** offers a new analytics engine and refreshed compression and memory optimization techniques . . . Australian defect-tracking software designer Jackal Software has released **BugAware 5.0**, offering new template-based multilanguage functionality. Danish and French are supported as well as English, and a German translation will be available shortly. BugAware 5.0 includes a new Web-based user interface that is team-focused and an external access system that allows clients to submit issues without requiring them to sign in to BugAware . . . Forte Design Systems has released version 3.3 of the **Cynthesizer** analysis tools that allow a direct translation from the SystemC description language to the GDSII database for exchanging IC layout information. The new version adds a graphical analysis environment, the Cynthesizer Workbench and design scheduling improvements, and marks the release of the company's CynWare SystemC design library . . . MontaVista Software has announced that **MontaVista Linux Professional Edition** is now supported on the Freescale Semiconductor MPC8349E-miTXE processor, of the PowerQUICC II Pro family . . . Sapphire Steel Software has released version 1.1 of **Ruby In Steel Developer**, a Ruby on Rails IDE for Visual Studio 2005. The new version includes the Cygnus debugger along with syntax coloring and code folding for Ruby code and RHTML templates . . . Ounce Labs has released version 5.0 of the **Ounce** security analysis engine, now featuring compliance with the Payment Card Industry (PCI) standard, along with the Open Web Application Security Project (OWASP) . . . Electric Cloud has added software build and release management analytics to its product family, made up of build automation tool **ElectricCommander**, the parallel build solution **Electric Accelerator** and the build reporting tool **ElectricInsight**.

PEOPLE

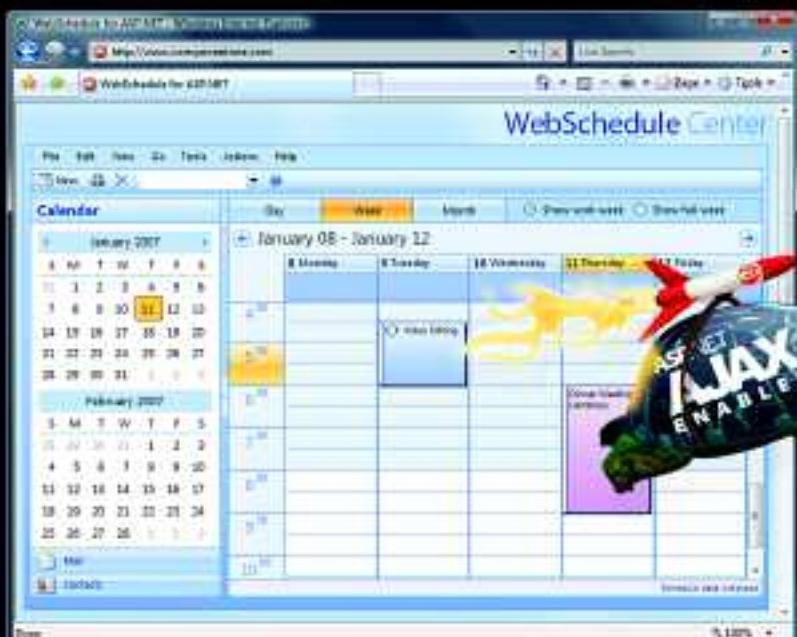
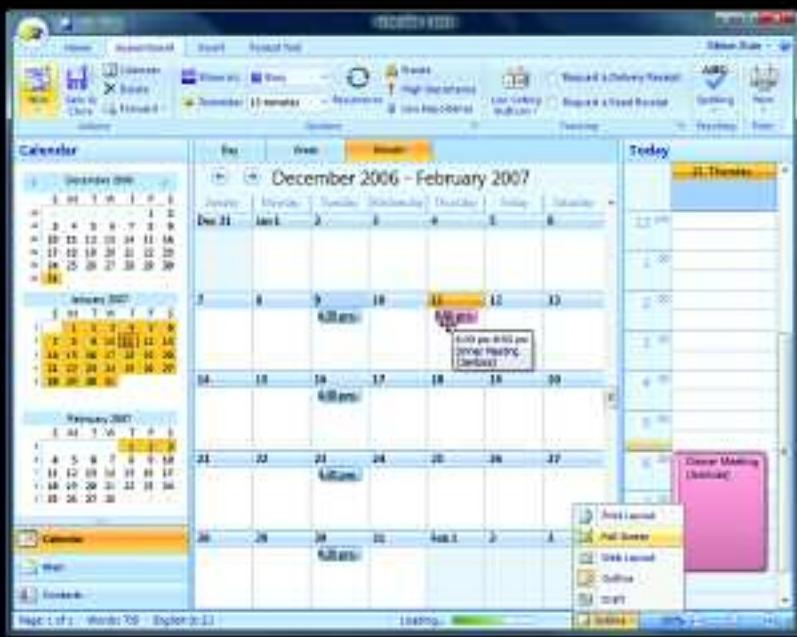
Tableau Software, a provider of visual analysis software, has announced that company co-founder and CTO **Pat Hanrahan** was elected to the 2007 Class of Fellows by the American Academy of Arts and Sciences. The academy, which was founded in 1780 by a group that included John and Samuel Adams, James Bowdoin and John Hancock, is dedicated to "cultivating arts and sciences which may tend to advance the interest, honour, dignity, and happiness of a free, independent and virtuous people."

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IBM Jazzes Up Collaboration With Web 2.0 Interfaces

BY ALEX HANDY

IBM has added all that Jazz to new collaboration tools in its Rational application life-cycle product lines.

At the company's 10th Rational Software Development Conference in Orlando, Fla., in early June, IBM announced the addition of new Web-based interfaces for Rational ClearCase, Rational ClearQuest and a number of other products, and issued the beta release of the first Jazz-based Rational product, Team Concert.

The Rational line was also expanded with the addition of a new repository, IBM Rational Asset Manager, which tracks software assets and allows users to rate and comment on each item.

Scott Hebner, IBM's vice president of marketing and strategy, used an analogy to describe the new repository: "If you wanted to get Chinese food, you look at a menu and consume info about that restaurant. This is more if you wanted to start your own Chinese restaurant."

The IBM Rational Asset Manager, Hebner continued, allows developers to aggregate all those figurative food recipes, and to append their comments and ratings to them, and thus a collaboratively developed internal software menu is formed. The new repository includes an Eclipse plug-in that allows developers to interact with stored software assets without leaving their IDE, said Hebner.

The Rational product team spent the past year preparing for the introduction of Jazz, IBM's Eclipse-based collaborative work environment and framework. The work that remains, Hebner noted, will now take place in the open.

WELCOME TO JAZZ.NET

At the conference, IBM opened the doors to www.jazz.net, a Web site that will be dedicated to building the Jazz community, and which Hebner pointed to as the future home for all of the development work done on the Jazz framework and platform. Developers will be able to test-drive the software, as well as contribute their ideas for features and additions.

The first member of the Jazz ensemble is already in the wings. A beta of IBM Rational Team Concert was released during the

conference, and can be downloaded from Jazz.net. Rational Team Concert is a "real-time collaborative portal for software developers to improve their innovation and productivity,"

claimed Hebner. "It's a flexible, low-footprint application life-cycle management platform for development teams."

Other products in the Rational lineup were updated with

new Web 2.0 interfaces, Hebner noted, including IBM Rational Method Composer 7.2, Rational Portfolio Manager 7.1, and version 7.01 releases of Rational ClearCase, ClearQuest, Build

Forge and Requisite Pro. Hebner said that the Web interface improvements were specifically targeted at development teams that are distributed, outsourced or in different time zones. ■

Trying to be agile when your Java code is fragile?



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PowerBuilder 11 Adds .NET Deployment

Sybase Data Window tool now works with Web services, MySQL

BY ALEX HANDY

Sybase is building more power into its database application development environment.

PowerBuilder 11 hit the streets for the first time in mid-June, and the new version brings the tool completely into the .NET

world. While previous editions of the software have offered built-in compatibility with the .NET platform, this is the first

version of PowerBuilder to allow direct compilation for the Microsoft framework. In addition, this version brings new

support for third-party databases and for the consumption of Web services.

Dimitri Volkmann, Sybase's director of tools product management, said that PowerBuilder 11 is the first edition of the tool to support all major databases, including Microsoft SQL Server, MySQL, Oracle and PostgreSQL. In addition, the ability to integrate Web services into PowerBuilder applications, he said, should bring a host of new skill sets to Sybase's user community.

Volkmann hopes that the abstraction of the data layer in applications built with PowerBuilder will tempt existing Visual Studio users away from Microsoft's IDE. He explained that much of the work in building a database-centric application involves writing queries and database presentation logic, all of which can be automated in PowerBuilder.

Sybase PowerBuilder 11 is available for US\$2,995 per user, or \$1,495 for those upgrading from previous versions.

For .NET developers, PowerBuilder 11 will allow the deployment of constructed database-centric applications to either the desktop or the Web, through .NET's various form types. Developers seeking to deploy on top of ASP.NET can push their compiled applications out to Web Forms, noted Volkmann.

PowerBuilder was originally created in 1991 by a team headed by David Litwack. In its day, this rapid application development environment was one of the first such programming tools to feature a visual editor. Subsequently, it grew into one of the most successful development tools of the early 1990s. The tool spurred its creator, PowerSoft, to go public two years later.

In 1995, Sybase purchased PowerSoft for a hair under US\$1 billion in Sybase stock. The deal soon soured as the market for visual application development was taken away by Visual Basic and Borland's Delphi. ■

FarPoint Spread for BizTalk

A Codeless Solution

Unlock your Microsoft Excel® spreadsheet data for use in your business process with FarPoint Spread for BizTalk. The FarPoint Spreadsheet Schema Wizard integrated into Visual Studio 2005 provides a codeless approach to creating the schema that determines the mapping of the resulting XML messages. FarPoint Spread for BizTalk makes it easy to generate a schema.

The FarPoint Spreadsheet Schema Wizard loads a source Excel (XLS) file as a template and lets you specify the data portion of each sheet separate from the header and trailer. You can choose which columns are record elements and which are record attributes in the generated output, and you can choose the XML data type for each column.

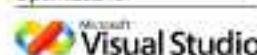
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Industry Expert and Microsoft MVP*



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Searching for Themes Behind Research

Google, Yahoo: Different corporate cultures mean different approaches to science

BY GEOFF KOCH

It's no surprise that search leaders Google and Yahoo are crawling with Ph.D. degrees. Beyond the legions of overeducated engineers who work to optimize search functionality, both companies have visible research organizations that boast rosters of top-flight academics. And despite their corporate affiliations, these professor types continue to crank out peer-reviewed conference presentations and journal articles.

Yet even though this sort of intellectual output is clearly valued at both companies, important differences exist when it comes to the approach to research. True to form, Google appears to be more anarchic and algorithm-driven, while Yahoo, which makes more of an effort to position and sell its research team as a hub of industry innovation, seems more focused on community.

Peter Norvig is the director of research at Google, where he has worked since 2001. A NASA veteran whose code flew on the Deep Space 1 and Mars Exploration Rovers, Norvig is now preoccupied by more terrestrial concerns—though he is also the man behind Google Mars. Ticking off Google's research interests, Norvig cites a range of activity, from work on the core search and advertising business to more novel pursuits, such as speech recognition and accessibility for visually impaired Web surfers. But good luck squeezing a prioritized list of research out of him.

"We don't think of things that way; we don't have as much internal structure, so we don't show it that way externally," said Norvig. "If you ask the average Google employees, 'Where are you on the org chart?' they don't really know. What they know is, 'I'm working on these projects with these four other guys. That's really where I fit.'"

This decentralized and somewhat freewheeling style is on full display at the official Google research blog, one of the more prominent public faces of the company's research activities. With a Google-typical ultra-spare design and postings that appear at wildly infrequent intervals, the blog appears to be



a collective afterthought.

Blog topics include calls to attend Google-sponsored conferences; archived lists of videos of interesting lectures at Google, including one delivered by Daniel Wilson, sci-fi author, and another by James Watson, Nobel laureate; and links, for those working on topics like machine translation, to various subgroupings of the 1 trillion words that have been culled from public Web sites by Google. For the record, the four-word phrase "serve as the inspiration" appears 10 times more often than "serve as the installation."

PARC AS ROLE MODEL

In contrast to the Google blog, the landing page for Yahoo Research looks like, well, a grown-up Web site of a Fortune 500 company. There's clear evidence of an eye to branding, design and layout, a more regular drumbeat of news and announcements and, just one click away, a clear statement of the Yahoo Research focus areas—search, machine learning, microeconomics, media experience research and community systems.

"We want to build something with the industry influence of Xerox PARC, which gave us the modern scientific field of human computer interaction," said Prabhakar Raghavan, head of Yahoo Research. "We aspire to be equally ambitious, but at Yahoo, we're much more concerned with the human-to-human interface."

Raghavan said that PARC was so productive—Xerox's West Coast lab arguably is the

source of the PC, the graphical user interface and the computer mouse, and a host of other inventions—because it had an eclectic mix of social scientists who commingled with computer scientists and engineers. It's a model Raghavan is trying to follow at Yahoo Research, which in May announced it was expanding its roster of social science researchers by hiring Cal Tech economist R. Preston McAfee and Columbia sociologist Duncan Watts.

Why would a social scientist flee the university for Yahoo? Raghavan doesn't mention salaries, though these almost surely trump academic pay scales by a wide margin. Rather, he talks about the ability to watch and analyze the Web-facilitated interactions of hundreds of millions of people.

"You get to be intensely data-driven and do experimental design on a scale you've never done before," he said. "I believe the social sciences are

due for a revolution because of the scale that we can offer."

MACHINE TRANSLATION

Dealing with scale is front and center at Google as well, and indeed much of the research that Norvig said he is most proud of has to do with using engineering brawn to make sense of large amounts of data.

In an effort to unlock the increasingly polyglot Web, the company continues to invest in machine translation. For a second straight year, Google scored at or near the top in several categories in the NIST 2006 machine translation evaluation.

In addition, Google-authored papers on MapReduce, a programming model for processing terabyte-sized data sets, and the Google File System distributed file storage system are "key reference papers now," said Norvig.

Yahoo can stake its own claim on research influence, though more in the realm of audiences than algorithms. In an article

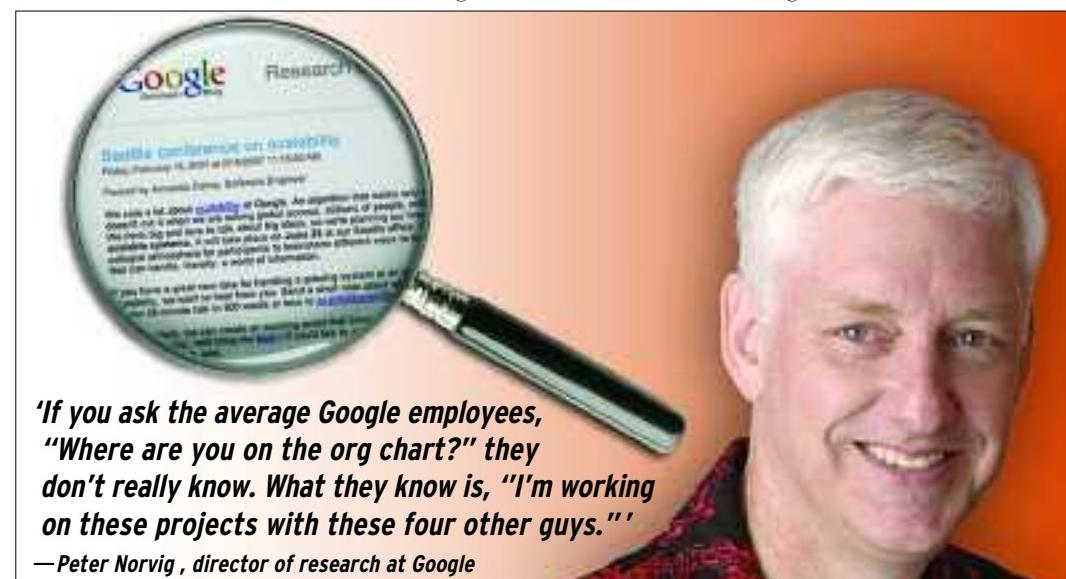
published earlier this year in the American Economic Review, senior research scientist Michael Schwartz offers what may be the best analysis to date of the auction pricing mechanism used by Google and Yahoo to sell online advertising. Schwartz, who worked at Harvard, Stanford and Berkeley before joining Yahoo, describes many facets of the auctions, including why advertisers don't have the incentive to make truthful bids.

Schwartz's analysis was so good that when it started circulating in academic circles more than a year ago, it was enough to cause the famously close-lipped Google to start describing more of the details of its AdWords system.

At least for now, Yahoo's research operation, particularly when it comes to the interface between social and computer sciences, appears to be more robust than Google's. But it's reasonable to wonder whether this at all bothers Google, which continues to clobber Yahoo when it comes to market share and revenue.

Still, for now Raghavan seems sanguine with Yahoo's emphasis on community and person-to-person connectivity.

"While the Internet is technology for you and me, for the next generation it's an appliance like electricity," he said. "It will be less about what you're doing with the screen than what you're doing with 1 billion other humans. Which is why we're continuing to make it easier for people to get together and find reasons to hang out with us; the device inevitably will fade to background." ■





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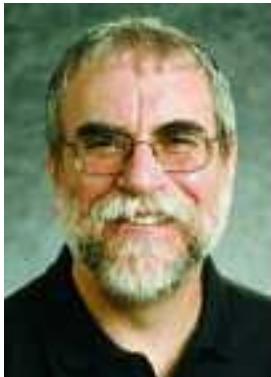
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Vendors Bask in the Tech-Ed Spotlight

The space shuttle is not the only thing to launch in Florida

BY DAVID WORTHINGTON

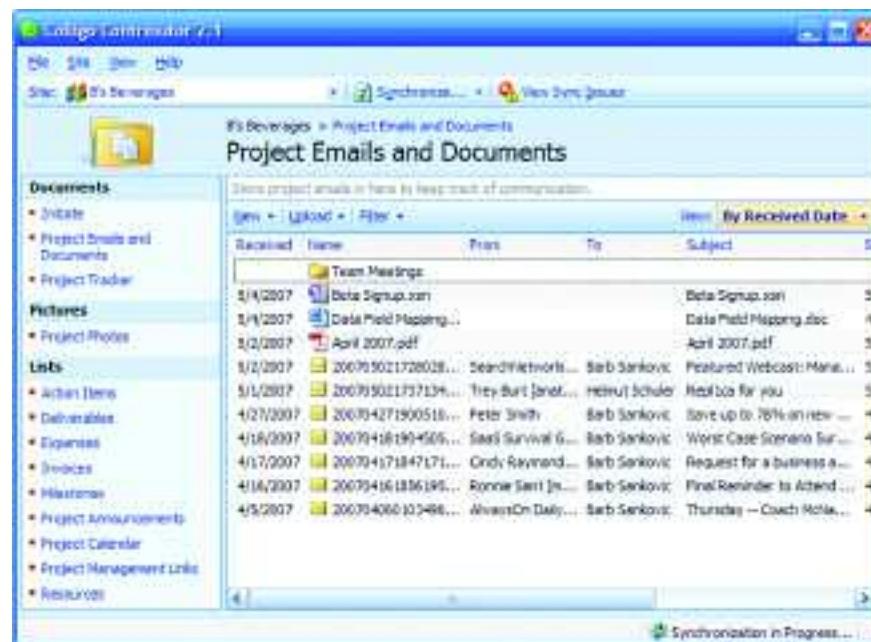
ORLANDO, FLA. — Developer tools, SharePoint enhancements and new tools for Microsoft SQL Server were among the new and updated products showcased by vendors during the Tech-Ed conference held here June 4 to 8.

Interface21, custodian of the Spring framework, an open source Java EE application framework, announced Spring.NET 1.1 at Tech-Ed on June 5. The .NET edition of the framework carries over Spring's architectural concepts and patterns while adding .NET-specific features, with consistency, portability and testability. Its new features include support for the ADO.NET data access framework, ASP.NET and ASP.NET AJAX integration, custom name spaces, declarative transaction management, NHibernate integration, Portable Service Abstraction and the NUnit testing tool.

Parasoft announced .TEST 4.0, with new static analysis technology. Bug Detective uses several analysis techniques, including application execution path simulation, to identify paths that could trigger runtime defects. Rami Jaamour, product manager for SOA Solution at Parasoft, explained that this technique is beneficial because it highlights software errors that may evade coding analysis and unit testing. The .TEST update also includes a new Code Review module that facilitates collaborative code reviews by managing distribution lists and groupings for review notifications and routings.

As the number of cores on a processor continues to double, developers face the challenge of understanding the underlying hardware architecture and parallel programming techniques, in addition to knowing how to create applications that scale with the number of cores. **RapidMind**'s development platform provides a level of abstraction between IDEs—including Eclipse and Microsoft Visual Studio—and multicore processors. At Tech-Ed, it shared its strategy to keep its product current by aggressively updating its CPU and GPU support modules. RapidMind CEO and president Ray DePaul explained that RapidMind is an alternative to vendor tools and SDKs, which may lock developers into a specific hardware platform.

When the developers and QA engineers complete their work, packaging begins. **Indigo Rose** unveiled Setup Factory for Windows Installer, a visual



Colligo for SharePoint synchronizes SharePoint with Microsoft Office Outlook.

setup builder based on Windows Installer XML (WiX) that developers can use to create MSI-formatted installer packages. WiX is a tool set for building Windows installation packages from XML and is an open source project on SourceForge.net.

SHAREPOINT: A COTTAGE INDUSTRY

At Tech-Ed, it was clear that a partner ecosystem is forming around Microsoft's SharePoint portal solution. Microsoft has not yet endowed SharePoint with offline components to integrate with Office Outlook or grouping and permission management capabilities, so others are stepping up to the plate.

Colligo for SharePoint 2.1 provides two-way synchronization between SharePoint 2007 document libraries and Outlook folders. Its .NET client applications also allow users to apply custom metadata to files, to drag and drop e-mails and attachments, and to set up Outlook rules to copy e-mails to SharePoint. Brent Bolleman, **Colligo Networks'** chief strategy officer and founder, said that Colligo was a good fit for mobile users because of its synchronicity.

Securent revealed its aptly named Entitlement Management Solution for SharePoint, an add-on that addresses enterprise security and compliance concerns. Likewise, **ScriptLogic** revealed a similar product called Security Explorer for SharePoint. Both products create and enforce access control policies that can be configured and audited by administrators to meet enterprise security and compliance mandates.

ScriptLogic's Nick Cavalancia, vice president of marketing, said that SharePoint's native security model was impeding its adoption in the enterprise and

that solutions such as Security Explorer were necessary for large organizations to consider SharePoint.

QUEST PLANS FOR NOW, FUTURE

Meanwhile, **Quest Software** released a flurry of products to build out SQL Server 2005's management capabilities. One new product, Change Director for SQL Server, was introduced, along with updates to Quest Performance Analysis for SQL Server and Quest Toad for SQL Server. Change Director permits database administrators to script and migrate database schema changes, while assessing the impact of those changes. Performance Analysis 6.0's memory sampling technology proactively tracks locking and blocking issues. New IntelliProfile technology monitors databases, to establish the baseline behavior of a system.

Toad 3.0, a database development and administration tool, now includes SQL server job management, logs all executed SQL code and has server-side filtering. New features intended to enhance productivity include the ability to add notes to database objects, edit duplicate table data, and export data with linked queries to Microsoft Excel with a single click.

Meanwhile, an update to Quest's LiteSpeed for SQL Server database backup and recovery tool adds new compression options. David Gugick, manager of product management for the SQL Server solutions business unit at Quest, commented that the company was excited about Microsoft's SQL Server 2008 (formerly code-named Katmai) and that the company was in the process of adding functionality to its products, positioning itself for next year's SQL Server release. ■

NETADVANTAGE: SILVERLIGHT

Infragistics is poised to release a line of interface development tools for Microsoft's forthcoming Silverlight platform and ASP.NET 3.5 framework. Prototypes of the tools were demonstrated at Tech-Ed.

NetAdvantage for Silverlight will bundle a library of charts and gauges for data visualization, rich content and media, as well as controls for application development scenarios. Infragistics showed off a collection of animated charts, an iTunes-like video shuffler, and an AJAX-enhanced address book.

Meanwhile, Aikido is the code name for Infragistics' upcoming ASP.NET control framework. Aikido was built using CSS and XHTML, and is integrated with Microsoft's ASP.NET AJAX 1.0 framework. Going forward, Aikido will fully support ASP.NET 3.5. ■

ACTIVEBATCH 6: COMPLIANCE

Advanced System Concepts has whipped up a fresh batch of automation with ActiveBatch Job Scheduler version 6. It adds new compliance features and protected group access to the company's flagship business process automation software. ActiveBatch 6 provides audit capability for tracking policy development and change management.

A new feature called Virtual Root allows enterprise data to be protected, but shared. Also new is a built-in job library that vice president of sales and marketing James Manias said will reduce the amount of scripting necessary to design workflows. Job types are automatically assembled into compound job flows by the software. ■

ALTIRIS SVS: STREAMING

Symantec believes that it has the solution to software deployment woes: virtualizing and streaming software delivery. Altiris Software Virtualization Solution (SVS) 2.1 now has integrated application streaming, which virtualizes code on a central server and feeds it to the end user when a program is launched. Symantec turned to AppStream, a provider of application streaming technologies, to build streaming capabilities into SVS.

SVS is designed to make Windows software deployment less painful by compressing all program files and registry keys into an archive. The archives are extracted onto local machines, bypassing the install process and emulating reboots. Machine-specific logic can be embedded into the archives when necessary. ■

— Compiled by David Worthington



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_INFRASTRUCTURE LOG

_DAY 72: We wrote our software but didn't build it to fit with the broader IT architecture requirements. Now we don't have the flexibility to reuse our assets. We're not moving forward. Why did we lock ourselves in like this?

_I never knew being stuck at work could be so literal.

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GPLv3, Apache Compatible in Final Draft

BY ALEX HANDY

It's been more than a year since the first draft of the GNU Public License version 3 reared its head. Since that time, its keepers at the Free Software Foun-

dation (FSF) have slowly taken comments and adjusted the license to fit the needs of the many communities that use it. Now, with the release in early June of what it's calling the final

draft of the license for public scrutiny, the FSF is nearing the end of its work.

Perhaps the biggest single development in this draft of the license is the addition of wording

that makes GPLv3 compatible with the Apache License Version 2.0. In the end, the changes needed to make these two licenses compatible with each other were fairly trivial, accord-

ing to the FSF, and required the change of a few words and the addition of some clarifications around patent indemnification.

Another major addition to this draft is a grandfathering date for the clauses describing discriminatory patent promises. Specifically, some of GPLv3's patent restrictions will apply only to deals made after March 28, 2007. The reasoning behind this clause, which would seemingly exempt the controversial Microsoft/Novell deal from the anti-discriminatory restrictions, was described, if confusingly so, in the GPLv3 Rationale paper:

"The main reason for this is tactical. We believe we can do more to protect the community by allowing Novell to use software under GPL version 3 than by forbidding it to do so.... It will apply, under the Microsoft/Novell deal, because of the coupons that Microsoft has acquired that essentially commit it to participate in the distribution of the Novell SLES GNU/Linux system. Microsoft is scrambling to dispose of as many Novell SLES coupons as possible prior to the adoption of GPLv3. Unfortunately for Microsoft, those coupons bear no expiration date, and paragraph 6 has no cut-off date. Through its ongoing distribution of coupons, Microsoft will have procured the distribution of GPLv3-covered programs as soon as they are included in Novell SLES distributions, thereby extending patent defenses to all down-stream recipients of that software by operation of paragraph 6."

Since Microsoft's distribution of coupons for SLES support—but not for the distribution of software implied by the wording of this explanation—also extend patent litigation protections to the recipient, the FSF maintains that this is a form of limited protection rather than a broad patent protection, which is mandated by the GPLv3. As such, Microsoft's limited patent protections would be placed in a precarious legal state if GPLv3 software were to mix into SLES.

Finally, the FSF removed references to an American law relating to warranties in order to satisfy international users. Sections that extended amnesty to product users who circumvent copyright protections contained within a GPLv3 program were also adjusted, for clarity.

The FSF hopes to finish up work by the end of the summer. ■

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Big Blue to Buy Watchfire

First development giant to get in the app security game

BY JENNIFER DEJONG

IBM has made the first move in the application security market, setting off speculation that other software development giants will follow suit.

The company last month announced it has entered into a definitive agreement to acquire privately held Watchfire, which sells black-box testing tool AppScan and other security offerings.

"Up until this point, none of the big players has gotten into the application security game. This puts IBM there, and it is a good move," said Voke analyst Theresa Lanowitz. "Now that IBM has done it, maybe HP and Microsoft will [make similar acquisitions]."

IBM Rational vice president of business development Mike Loria said that the Watchfire acquisition will help companies address security issues earlier in the application life cycle. "You need to find the problems in the application [itself], and allow developers to fix them."

Loria said IBM plans to integrate Watchfire's AppScan and WebXM tools with the Rational and Tivoli product lines, as well as with the network security tools that IBM acquired when it bought Internet Security Systems last year. AppScan and WebXM will also be available as standalone offerings under the new regime.

AppScan finds and fixes security vulnerabilities by simulating attacks that a hacker might launch, and was originally developed by Sanctum, a software company that Watchfire acquired in 2004. WebXM lets companies audit their Web applications to make sure customer data is protected properly, ensuring compliance with government mandates such as HIPAA, the Health Insurance Portability and Accountability Act of 1996.

Financial terms of the acquisition, expected to close in the third quarter of 2007, were not disclosed. Watchfire CTO Mike Weider said that all of the com-



'If [the other big players] want to remain competitive with us, they will look at how to respond in kind.'

—Mike Loria, VP of business development, IBM Rational

pany's senior executives are expected to move over to IBM, as will the majority of the company's employees. The exact role Weider will assume at IBM has not yet been determined, nor has that of Watchfire CEO Peter McKay.

CATCH-22 SITUATION'

In buying Watchfire and integrating its tools with its Rational development platform, IBM will take a leading role in proactive application security by spreading the word on why it's essential to address security concerns early in the application life cycle, instead of simply relying on firewalls that aim to block intruders at the network door,

said Lanowitz. "It's really been a Catch-22 situation," she said. The application security tool makers have worked hard to raise awareness around this issue, but without the direct backing of the big players, making significant inroads has been difficult, she said.

The industry has failed to take a firm stand around secure development, added Aberdeen analyst Carol Baroudi. "We have been remiss, but it's time to hunker down around application security."

Lanowitz said she is surprised it has taken so long for a big player such as IBM to make an application security acquisition, but she cited a couple of

contributing factors. "First, customers aren't raising the issue: Neither CIOs or line-of-business executives are demanding application security tools." Second, she believes that the application security firms' valuations are likely to be too high. "That's why [potential buyers] were waiting," she speculated.

In addition to Watchfire, the application security market is composed of small, privately held firms, such as Cenzic, Fortify, Ounce Labs and SPI Dynamics. They sell black-box testing tools and source code scanners, which pinpoint security flaws. Several companies, including Watchfire, have said recently that sales have grown in the past year. But Yankee Group analyst Andrew Jaquith estimated that the entire market for code assurance is less than US\$30 million in size, as reported earlier by SD Times.

It's interesting that IBM jumped in first, Lanowitz said of the planned Watchfire acquisition. "They usually wait."

But this time IBM has taken the lead over competitors, said company executive Loria. "If they want to remain competitive with us, they will look at how to respond in kind." ■

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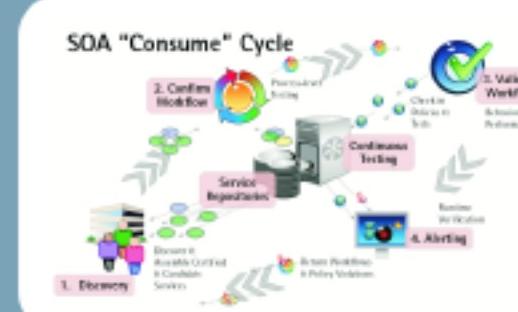
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Analysts Predict Open Source Boom

Companies offering support, services can make business out of free code

BY ALEX HANDY

Service and support have become the backbone of many large software companies. But for enterprises that build their applications on top of open source projects, the idea of purchasing service-level agreements (SLAs) for support of those projects has only recently become viable. Every month, new companies spring up to offer brainpower-on-demand to enterprises that rely on open source. After all, said one analyst, you can't get an SLA from a community.

Michael Goulde, an analyst with Forrester Research, said that enterprises really don't care too much about the business model behind the open source companies they deal with; they simply want accountability. "Accountability means someone they can go to with a service-level agreement that can provide them with break-fix support," he said.

Mark Driver, Gartner's vice president of research, said that while communities can make or break an open source project, they can't cater to the needs of the enterprise. "I don't want to discount the importance of community, but community doesn't come with an SLA."

Bernard Golden, author of the book "Succeeding With Open Source," said that SLAs aren't the only draw for big companies to sign up for open source support contracts. One attraction is simple version control. "You'll say, 'We're using a bunch of open source software, and we're not really sure what versions we've got.' You can try and home-grow your own solution, which is, I think, fairly challenging. Or you can go out and say, 'How can I solve this problem by spending money?'" said Golden. "It's the latter that really makes sense."

As a result, Driver sees a niche in the marketplace that he said is being filled by the dozens of new service and support companies that have sprung up around open source projects. Companies such as MuleSource, MySQL and OpenLogic are able to give enterprises the needed confidence in open source, said Driver. As a result, Driver predicted that the next five years could see an explosion of new providers arriving to offer some much-needed handholding to corporate developers.

According to Driver, corporations fall into two categories when it comes to open source: those on the left of the technology adoption bell curve, and those on the right. Although some superficial parallels with the political counterparts exist,

those on the right are the ones that Driver predicts will spur the growth of open source service and support.

"We are now seeing open source adopters aggressively looking at open source from the right-hand side of the bell curve—these are the much more conservative adopters," said Driver. "On the left-hand side, you meet people ready to take a higher risk for greater reward. People on the right-hand side don't think that way. They worry about cost first, then risk, then competitive flexibility."

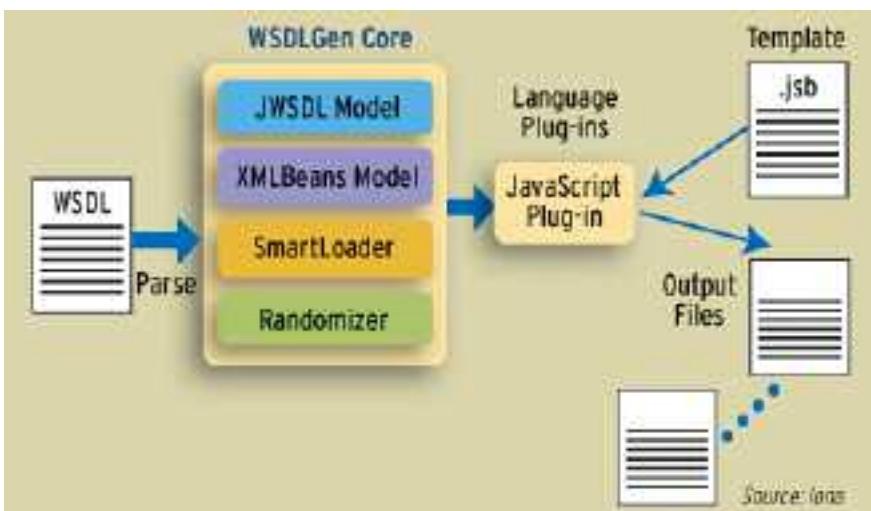
Despite his predictions of big rock candy mountains and licorice bridges for open source service and support companies, Driver did point out that there are still some trolls under those bridges. He said that he expects this new segment of the software industry to behave similarly to its neighbors: The field will flood with entrepreneurs and will eventually be flushed out by a surge of consolidation. But the real threat, claimed Driver, isn't acquisitions; it's patent litigation.

HERE COMES THE JUDGE

"Part of the problem we have with open source in general is that there's not a lot of case law on the books," said Driver. "We need more precedent. If precedent is there, good or bad, lawyers can work with it. The few court cases we've seen have been settled out of court. Over time we will see more lawsuits. You sue where the money is. Open source will become a victim of its own success." While Driver predicted more litigation would come, he stated that these forthcoming cases could actually be a good thing for open source as a whole.

Forrester's Goulde also predicted some hardships for open source service and support companies. "It's so easy to be very competitive; there's not a lot of proprietary content here. You're not going to make a big killing here. No one can corner the market on Apache Web server support," said Goulde. "It's a good deal for customers."

Goulde added that open source is currently more of a buzzword than it is a business strategy to the current crop of competitors. "I don't think that maintaining your primary identity as an open source company is the future. I think almost all companies will have varying degrees of open source in their strategy," said Goulde. "Being an open source company will become a descriptive term for almost all software companies." ■



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Iona Lets Loose An Artix Avalanche

Data services, governance and other features added to SOA suite

BY P.J. CONNOLLY

Although global warming may be shrinking the Arctic's polar ice caps, Iona Technologies' Artix just keeps growing. Last month the company announced several upgrades to the SOA infrastructure suite, and the introduction of Artix Data Services for data transformation. The new features of Artix focus on developer productivity, flexibility in deployment, and performance improvements.

The Artix update was designed to take advantage of the governance features in Artix Registry/Repository, which debuted in March. Artix Registry/Repository provides a service manifest for distributed service-oriented architecture environments that the company claims is complete and dynamic, with contracts, dependencies and implementation artifacts defined in a way that allows for validation of policies and services. This lets customers approach governance flexibly, when compared with those tools that are built around a static archive of these constructs.

The new Artix Data Services is based on technology originally developed at C24, which Iona bought in March. It's designed to execute data transformations at runtime as quickly as possible in large-scale, performance-demanding SOA environments. Artix Data Services includes a set of graphical development tools that the company claims eliminate the need to write transformation code or scripts, and rules-based data validation features that contribute to ensuring data integrity in the environment.

Digging into the individual updates,

Artix ESB 5.0 is the "classic" Artix enterprise service bus, now beefed up with support for JAX-WS 2.0 and WSDL generation capabilities that allow developers to take WSDL contracts and create complete C++ and Java applications from them. The update also includes performance and routing improvements, according to the company.

Artix Orchestration 5.0 adds support for the gamut of WS-BPEL 2.0 process constructs and semantics, and works with Eclipse 3.2. It also offers side-by-side execution of BPEL 1.1 and 2.0 processes, and automatic migration of BPEL4WS 1.1 processes to WS-BPEL 2.0 formats.

Customers that wish to include mainframe-based assets in their SOAs can turn to Artix Mainframe, which in this release adds a new versioning utility, and allows the use of COBOL Level 88. Artix Mainframe now also allows user exceptions in CICS and IMS Web services that were built in Interface Description Language, and can also generate unique OTMA (IMS Online Transaction Manager Access) T-pipe names for asynchronous requests.

There are three common themes that underlie these products and capabilities, noted Stephanos Bacon, vice president of product development. "We think about SOA as being inherently distributed," he said. "We talk about our product line as enabling the development and deployment of a distributed SOA infrastructure, and we gear everything, from the technology side as well as on the business side of things, to be adoptable incrementally." ■

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Solstice Integra 6 Validates Against Java EE

EJB, Java Key Store support expand SOA testing

BY DAVID WORTHINGTON

A solstice occurs twice a year, and staying true to its namesake, Solstice Software shipped the second release of its Integra suite for SOA testing this year, on June 29. Integra 6.0 deepens its Java Enterprise Edition (Java EE) support and expands test coverage within secure environments.

"It can be difficult for non-technical testers that do not understand the complexities of SOA architecture to get their arms around EJB interfaces," said Solstice chief technology officer Bob Carmichael. Solstice has democratized testing for non-developers by providing a wizard and a graphical editor to construct Enterprise JavaBeans (EJB) test cases.

According to Carmichael, traditional black-box test sce-

narios cover only a small percentage of logic. The new test case tools, he said, make validation of message-based systems across application components a more seamless part of the development life cycle and create a centralized environment for development and QA teams.

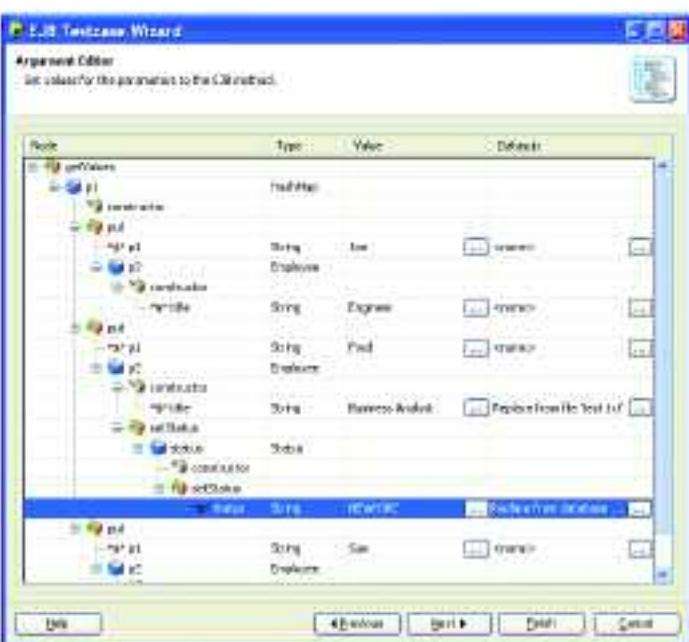
The Integra Test Automation Core has platform libraries that provide tailored validation of ESB and SOA platforms, including a Java EE library. Integra 6's new capabilities are part of the updated Java EE library. Integra can now execute EJB interfaces (2.0 and 3.0 releases) and validate results without writing code, thanks to its support for the EJB specification.

Integra's ability to detect SOA defects within secure environments has been ex-

panded to work both at the Web-services level and the transport level. Carmichael explained that testers require appropriate credentials to execute processes in secure environments—most commonly the staging environment.

Solstice broadened its support for key store formats and authentication; Integra now allows testers to supply credentials as part of the test case. The supported formats are JKS (Java Key Store), PEM (Privacy Enhanced Mail) and PKCS 12 (Personal Information Exchange Syntax Standard), a portable format for the storage and transport of users' private keys and certificates. Integra also accepts the digital signatures of SOAP messages.

"This [support] eliminates a hurdle to creating reusable



Integra's wizard helps construct Enterprise JavaBeans test cases.

tests," Carmichael noted.

On the authentication end, Integra supports WS-Security and SAML. It applies layered

security actions on messages, which is useful when only a section of a file needs to be digitally signed, said Carmichael. ■

Google Puts Web Apps in Gear

BY JEFF FEINMAN

Google hopes to make life easier for developers traveling on airplanes, or finding themselves in places where Internet access is spotty, with a beta release of Google Gears, a free, open source tool for creating Web applications offline.

Much of the buzz that followed the announcement of Google Gears at the company's May Developer Day stems from the idea of having a single standard for offline capabilities.

Google Gears provides a local server for the caching and serving of application resources and local data storage in a fully searchable relational database, and uses a worker thread pool to improve application responsiveness by running computationally intense applications in the background. The LocalServer, which is part of the Google Gears API, is a container for stores of URLs that are used in an application.

David Mitchell Smith, an analyst for Gartner, said that the tool's biggest benefit is that it works on multiple browsers and different systems. However, he noted that Google Gears is not the first of its kind.

"I think it's got a lot of potential, so people should be looking at it, but they shouldn't

be looking at it as the only solution," Smith said. "There are competing offerings, like the toolkit from Dojo, and then of course there's Microsoft. They'll have to respond one way or another, probably with something that's a little bit more focused on a rich client approach that reaches out to the Web. They have Ray Ozzie, who in a lot of ways is the king of offline, and I'm sure he's going to have some things to offer."

Smith was referring to Ozzie's role in the creation of Lotus Notes, a desktop client

option for accessing business emails, calendars and applications from an IBM Lotus Domino server. Ozzie created Lotus Notes with his company Iris Associates, founded in 1984.

Google Gears uses the public domain SQLite database management system. Mozilla and Adobe will be joining forces with Google on the Gears project to create one consistent API for offline functionality.

Kevin Lynch, senior vice president and chief software architect of Adobe Systems,

said as part of the Google announcement that the Google Gears API will eventually be available in Adobe Integration Runtime (AIR), formerly known as Apollo. Aligning the Google Gears and Apollo DB APIs, both of which use the SQLite database, is intended to make building applications that can leverage both API implementations easier, Lynch said.

Gartner's Smith observed that while most attempts at offline work have been relatively heavyweight solutions,

Google has always been able to do things in a reasonably lightweight fashion. Because of Google's lightweight style, there is a great deal of potential for this to be adopted in high numbers, Smith said. He added that without connection to the Web, developers creating Web applications have fewer capabilities, but the new tool makes that less of an issue.

Smith pointed out that even with the growing availability of wireless connections and Internet access, there are still many instances where people cannot access the Internet, airplanes being an obvious example. ■

Adobe AIRs Out Desktop Client Runtime

◀ continued from page 1

get the reach but provide options?"

The desktop client gives users options the browser can't provide: the ability to work on applications offline, to read and write files to disk, and to tie in system notifications, among many other advantages, Downey said.

He explained that AIR goes beyond the Flash Player because Flash lives in the browser and is constrained by the browser, while AIR resides on the desktop, providing more capabilities than can

now be delivered via the browser.

AIR also can let developers use PDF content in their applications, thanks to support for Adobe Reader 8.1 or higher. And, at Adobe Labs, an extension to Adobe's Dreamweaver enables those developers to build AIR applications in that tool, where AJAX support is extensive, Downey added.

"This is the next generation of our RIA platform," said Dave Gruber, group product marketing manager for Flex.

The Flex 3 release marks the beginning of Adobe's

promise to take the product open source. Adobe will deliver the public road map for Flex, along with the bug base, Gruber said.

The release includes a number of major new features, Gruber said. While AIR provides base-level APIs for direct connectivity to the client database, the Flex 3 framework allows developers to work with local data and sync it with the remote server via Lifecycle ES Data Services (formerly Flex Data Services).

Also new is the inclusion of an AIR debugger in Flex

Builder, the design tool; application packaging and signing for Flex applications to deploy on AIR; code refactoring tools; and the ability to cache the Flex framework inside the Flash Player.

Integration with Adobe's Creative Studio 3 enables developers to create skins and styles in that tool and then layer them into Flex applications, Gruber said. He added that images can be imported from Adobe's Photoshop and Illustrator applications.

"People are beginning to see the richness of bringing Adobe's products together with the old Macromedia products," Gruber said. ■

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Trolltech Offers Java RIA Framework

Qt Jambi lets developers build on C++ in Java and deploy applications via browser

BY ALEX HANDY

Developers that wish to reuse code in rich Internet applications may turn to Trolltech, which in early June released Qt Jambi, a cross-platform rich client application framework and API. While Jambi was built for Java, it's based on existing Qt C++ work, and existing C++ assets can therefore be run through the Jambi generator, producing Java components and APIs.

Trolltech is known for its Qt line of APIs, frameworks and GUI libraries. This experience has been brought to bear on Java, with the release of Qt Jambi. Naren Karattup, product director of development tools at Trolltech, said that Jambi enables cross-platform development in a manner previously unavailable to Qt users, thanks to the software's Java underpinnings.

"It will enable developers to deliver compelling rich client cross-platform applications, with native look-and-feel, using their existing Java skills and tools, with a very high degree of desktop integration—drag-and-drop and local file system resources will work, among other things—and to do so using a mature and highly powerful API," said Karattup. Those desktop integrations have traditionally been a sticking point for browser-based rich client applications, he added.

BROWSER OPTION

But Jambi will also allow developers to deploy their applications through a browser instead of a desktop, said Karattup. "Although the primary intended usage for Qt Jambi is to make traditional rich clients, it can also produce Web applications that can be deployed over the Web in a browser, which is one of the primary selling points."

Jambi applications are also easier to test, he added. "Programmers get a predictable, consistent API helping them to create applications which can be deployed without having to exhaustively test on the matrix of different browsers and different platforms."

Qt Jambi positions itself, like sandwich bread, around the Java Virtual Machine. The Java

layer to which developers program sits on top of the JVM, while the C++ Qt-based foundation rides underneath, shepherding the existing interface

elements and handling the hardware and operating system interactions. As a result, developers have a much greater ability to touch the computer from

inside the rich clients they write.

Karattup also noted that Jambi includes Eclipse integrations, to speed development

and application generation. Jambi is available now from Trolltech, and is offered under a dual license, for either commercial or open source work. ■

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DATA DYNAMICS

Europa Release Gives Eclipse Major Overhaul

◀ continued from page 1

gramming tool and BPEL editing tools as well.

Of course, Java doesn't get all of the love in Europa. Another project that's first seeing the light of day in this release is the Dynamic Language Toolkit (DLT). While this toolkit is specifically designed to allow developers to add new dynamic languages to the Eclipse IDE as plug-ins, it also includes two sample language implementations for Ruby and TCL.

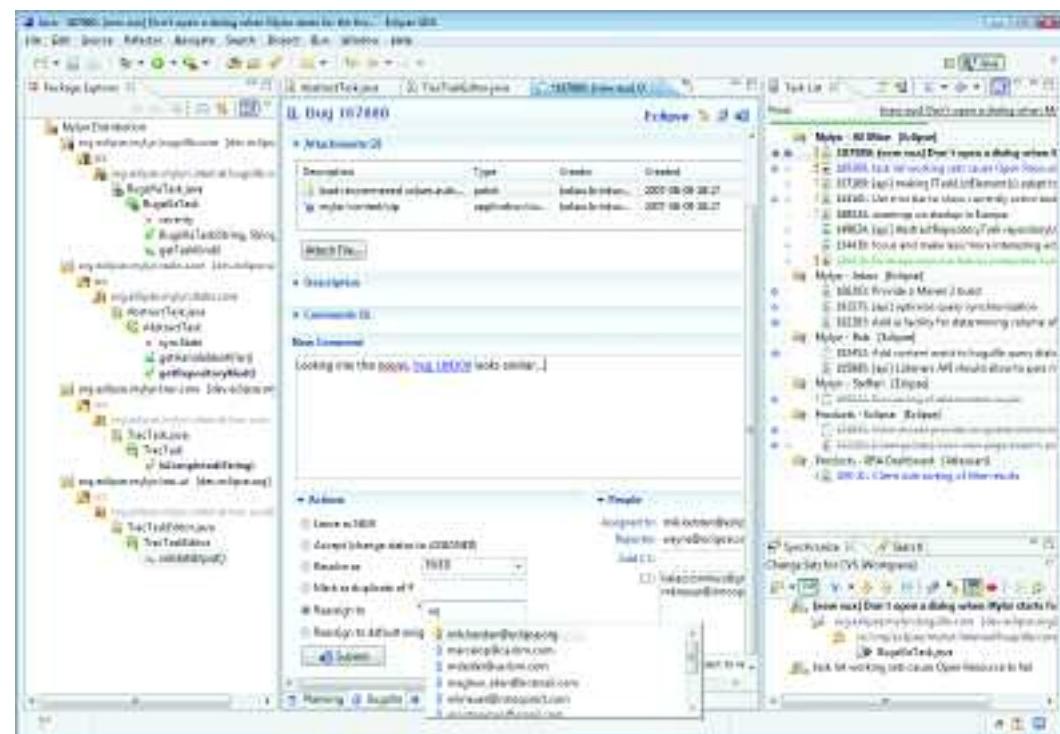
The trackbed of Eclipse has been overhauled for this release as well. The OSGi Alliance's new Equinox technology has been integrated into Eclipse, to the benefit of the rich client platform. For Web programmers, the Web Tools Platform (WTP) can now manage Tomcat work directories from inside Eclipse. Additionally, the WTP now includes a visual page editor designed to ease the development of JavaServer Pages (JSP) and HTML.

The BIRT reporting suite has also been updated. "We think this is a great project that offers a lot of functionality to Java developers," said Milinkovich.

"There are several different new chart types. There's a new dynamic cross-paths report. You can actually have [Microsoft's] Word and Excel as output formats for your reports, now. You can use Web services as data sources. They've done some work on making it easier to deploy and integrate BIRT with server applications, too. The days of hand-coded JSP for reporting is coming to an end with the way BIRT is progressing."

And, keeping up with the times, all portions of the Eclipse Europa release are now compatible with Windows Vista. Developers hoping for some simplicity in the install process will also be happy to hear that the Eclipse Foundation has streamlined the packaging of the IDE. Specifically, there will be four packages available: one for Java developers, another for enterprise Java developers that includes Java EE support, a third for C/C++ developers, and the last, for RCP and plug-in developers.

Eclipse's Europa release can be found online at www.eclipse.org. The software and all of its plug-ins and frameworks are free and open source. ■



Mylyn's name has changed to Mylyn, and for Europa it will offer new workflow task views.

21 PROJECTS, 17M LINES OF CODE

With more than 17 million lines of code, 21 projects and programmers from 25 countries contributing to the project, Eclipse's Europa release is one of the largest open source projects. Despite that size, the project has been hitting its annual release dates consistently for the past few Junes. This time around, however, the release includes more third-party projects than ever before. Here's a list of projects that have been updated in Europa.

Tools for Enterprise Developers

- AspectJ Development Tools Project
- Business Intelligence and Reporting Tools (BIRT)
- Buckminster Component Assembly Project
- Dynamic Language Toolkit (DLTK), featuring support for Ruby and TCL
- Data Tools Platform

Tools for Embedded Developers

- Mylyn workflow tool (formerly known as Mylar)
- SOA Tools Platform
- Test and Performance Tools Platform (TPTP)
- Web Tools Platform (WTP)
- Dash tools for committers
- Eclipse Platform
- Eclipse Modeling Framework
- Eclipse Modeling Framework Technology

- Eclipse Modeling Framework Technology-Jet
- Graphical Editing Framework
- Graphical Modeling Framework
- Model Development Tools
- Eclipse Communications Framework

Tools for Embedded Developers

- C/C++ IDE
- Device Debugging
- Target Management

Virtualization Gives QA Next-Best Thing to Real Thing

◀ continued from page 3

that "they can find the defects, capture the URL of where the defect would be, send that URL to the developer, [who] brings up on their development machine that virtualized environment."

Lanowitz cited another benefit of virtual lab automation: the ability to use offshore help better. Instead of packing up a computer in San Jose, sending it to Bangalore, India, and praying it isn't lost or damaged in transit, "you give your offshore team a virtualized image of what they're testing against or what they're developing against. They don't have to wait for anything...you're saving so

much time in provisioning."

Time is the big savings, according to Voke's research, she noted. "Going from two to three—or five to six—days down to a few minutes is a huge savings in time, and what that really equates to is less dependence by the QA organizations, and by the development organizations, on people in IT services."

Time is people, and people are money, she continued: "You don't have to have as many tactically driven people on the IT services side to set up those labs, and make sure the operating system has the correct patches and so on." The headcount thus saved on "grunt"

services can be redeployed, inside IT, or returned to the line of business.

"People who have implemented [virtualization] on the application development side see immediate benefits, immediate cost savings," according to Lanowitz. "They can reduce their development and QA time by as much as 50 percent within a project life cycle."

Lanowitz explained, "What virtualization is delivering now is a very flexible, malleable environment for people throughout the organization: sales, marketing, development, QA, operations." It liberates them from the old machine-operating system lock-in, and allows the cus-

tomer to "use whatever image or environment they need to use at any particular time on any piece of hardware. The future is really bright for this constant kind of virtualization across the entire enterprise."

UNANSWERED QUESTIONS

But the industry isn't ready everywhere for virtualization, she noted. "One of the problems that we'll see...is how are tools and applications licensed in this kind of a virtual environment? So many vendors license their software to a seat or a physical computer. What happens if you take that system and virtualize that, several times over? Do you need a

separate license? Do you sell a virtualization license, if you're a software vendor? These are the types of questions that the industry has not yet answered."

Virtualization, Lanowitz concluded, "is something that goes across the entire organization, where the operations people have been using it for so long in the data center, and now the people on the development side are starting to take a look at this and say, 'Guess what, we can reduce our dependency on cost.' It squashes a lot of fears around the idea of security and around [whether] they're using the correct environment." ■

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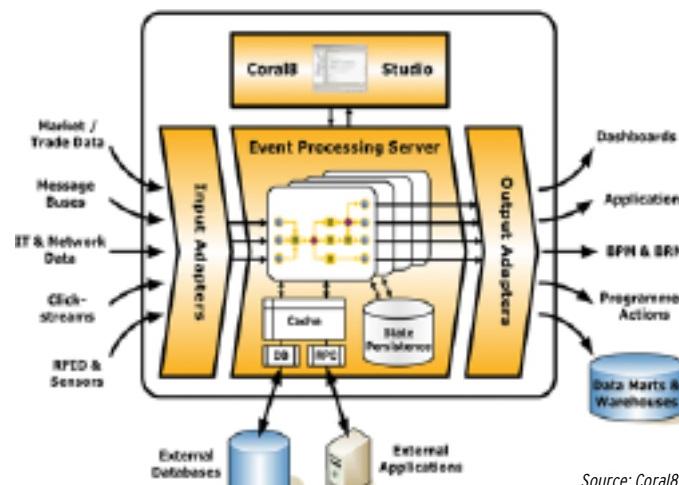
Coral8, StreamBase try to untangle web of transactions

BY ALEX HANDY

While computers are getting faster every day, the information they must handle seems to be outpacing the growth predicted by Moore's Law. Perhaps that's why complex event processing (CEP) platforms are beginning to make headway into software development shops that aren't simply dealing with stocks and commodities trading, where CEP first came to prominence. These platforms have carved out a niche for themselves in the gray area where a database is too slow, and an application server is too unpredictable. For vendors such as Coral8 and StreamBase, the world of CEP is expanding further beyond financial services every day.

Coral8 has been selling its CEP software for just over a year. In June, the company released version 5.0 of its CEP platform, heralding a heavy increase in speed and performance.

John Morrell, director of product marketing for Coral8,



Coral8 and StreamBase are banking that complex event processing will save developers time and energy.

observed that CEP is ready for broad use. "We're seeing a big shift in the market where people have now recognized what CEP is, and what it can do for them in a number of application areas," said Morrell. "They're moving beyond the experimentation stage. [CEP] requires a much stronger infrastructure compo-

nent that will allow these folks to scale their applications, tune them and manage them on an enterprise basis."

Morrell said that Coral8's software promises latency of a half-millisecond per transaction, a level of efficiency that would be difficult to replicate in standard development processes.

Instead of saddling developers with the task of building the processing engine from scratch, Coral8 offers them tools for streamlining the processes running in the CEP platform.

"As people start to build more complex applications, the queries inside the CEP algorithm become more complex and more varied. In order to tune these systems, you need to get a lot of statistics about what's going on in these queries," said Morrell. As such, Coral8 has included new controls for queries and new visualizations to help understand where bottlenecks are in data streams.

StreamBase, meanwhile, is finishing its own version 5. The company says it will be releasing the update this September, and also announced that StreamBase 5 will focus on new customer-centric features specific to some of the new markets opening up to CEP. In particular, it will feature new query actions, such as pattern matching, which can be

performed on the data processed in the CEP.

StreamBase 5 will also include new frameworks for building applications on top of the CEP software. At first, the company will release a trading framework, but others are expected to be available soon after the release. Additionally, StreamBase 5 will include persistence connectors for IBM DB2, which will allow process streams to be saved for later use.

John Partridge, StreamBase's co-founder and vice president for industry solutions, said that the CEP market has lately begun to heat up. While StreamBase began selling its namesake solution only in 2005, the company's customer base has already expanded into new vertical markets, he said.

"It's heating up in a couple of different areas, beyond financial services and military intelligence stuff. The telecommunications space is interested, and also network monitoring and intrusion detection companies. It's even as far-reaching as massively multiplayer online games. We didn't plan that when we launched the company," said Partridge. ■



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Oracle Unveils Developer Tools for .NET Platform

BY P.J. CONNOLLY

Oracle in early June announced beta versions of two free developer tools for Microsoft's .NET development platform, and plans to improve its tooling for ASP.NET services.

The betas of Oracle Data Provider for .NET and Oracle Developer Tools for Visual Studio .NET are expected by the company to simplify the building of .NET applications that use an Oracle database. Both allow developers to create .NET custom data types from abstract data types used by Oracle, and add source control integration and support for user-defined types. The tools work best with Visual Studio 2005, says the company, although the Visual Studio plug-in can also be used with Visual Studio .NET 2003.

Teradata Integrating C, Java Libraries

BY P.J. CONNOLLY

Teradata announced in late May that it would be integrating two numerical libraries from Visual Numerics into its line of applications and tools.

After looking at the available third-party options, explained Teradata senior advanced analytics product manager Robert Juhasz, the company chose Visual Numerics because it was established, it had robust libraries with a number of analytic functions, and it had a track record in a broad range of industries.

The IMSL C Numerical Library and JMSL Numerical Library for Java are intended to help customers build forecasting tools and predictive analysis applications by incorporating neural network technology. This allows users to build predictive models, using historical data and training the network to tweak the model as data accumulates.

This training takes a repeated series of forecasts and makes comparisons against actual outcomes.

Teradata—in the process of splitting off from NCR—has already begun work on building the JMSL library into its apps and expects to release updates by the end of June; no timetable has been set for doing the same with the IMSL library. ■

Developers can drag and drop Oracle database objects onto ASP.NET Web pages with the new tools, while the source control features in the Visual Studio plug-in allow them to back up and version .NET

applications with Oracle scripts, using a number of common source control systems.

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base 10g, including application security context, clustering and native Oracle data types such as large objects (LOBs) and REF Cursors, which allow record sets to be returned from stored procedures and packages.

The company revealed plans for the future availability of Oracle Providers for ASP.NET, which would allow ASP.NET applications to manage state information and other useful data within an Oracle database. ■

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Microsoft Sticks to Here-and-Now at Tech-Ed

◀ continued from page 1

mistakes of previous years' keynotes: overarching discussions about Microsoft's visions, from Hailstorm to WinFS.

The topic of Muglia's keynote was Microsoft's Dynamic Sys-

tems Initiative (DSI), an optimization model in which software and services can come together as a strategic asset for businesses. The keynote was topped off with a discussion of what defines business agility,

with Gartner vice president and distinguished analyst Tom Bittman. The lengthy DSI discussion did not set off Lloyd's MS-BS detector, but did trigger a slow bleed of attendees from the auditorium.

Muglia also announced that Microsoft and Linux vendor Xandros will collaborate on intellectual property assurance, Office document compatibility, server interoperability and systems management interopera-

bility, and both will commit to joint sales and marketing efforts.

A little more than a week after the revelation of Microsoft's intellectual property agreement with Xandros, it was announced on June 14 that Linspire, a former litigant against Microsoft, had followed suit with an agreement even broader than the software giant's pact with Xandros and its earlier pact Novell: Microsoft intellectual property will be bundled with a Linux distribution. The Linspire 5.0 operating system will contain Microsoft technologies for digital media, instant messaging, search and typography, if customers purchase a patent SKU.

Muglia sorted out a couple of nagging branding issues, by announcing that the long-awaited "Longhorn" Server and Visual Studio "Orcas" would ship as Windows Server 2008 and Visual Studio 2008, respectively. No word was given on exactly when in that year they might ship, giving the company a full year and a half of breathing room. Developers left Tech-Ed with a handful of beta software, including beta 1 of Visual Studio 2008.

In addition, Microsoft introduced three Server Core roles for Windows Server and a new Visual Studio mode that allows partners to apply their own branding. Server Core roles are specialized, low-footprint installations of Windows Server without the GUI; the new roles announced at Tech-Ed are those of media server, based on Windows Media Services, virtualization server, based on Windows Virtualization Services (code-named "Viridian") and Web server based on IIS (Internet Information Server) 7.

BEYOND 2008?

Attempts to coax Microsoft executives to define the product road map beyond 2008 were unsuccessful: Microsoft is simply not talking futures at this time.

The real story behind Tech-Ed this year was the parade of small events that made it an immersive experience for developers. Among other topics, attendees were introduced to the basic concepts of building Silverlight-enabled Web applications, saw demonstrations of SoftGrid Application sequencing, and were given the details of Microsoft's support for Web standards and Web application security. There was also a hands-on session with the .NET Micro Framework. ■

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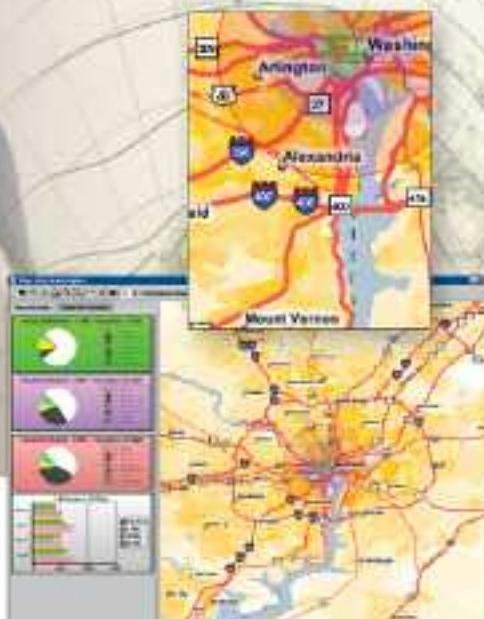
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IBM Buys Telelogic, Extends ALM Reach

◀ continued from page 1

unit, according to Danny Sabbah, general manager of IBM Rational. IBM has stated that it will retain Telelogic's products, employees and prior acquisitions, including the most recent Popkin Software and I-Logix purchases. The main motivation behind IBM's purchase of Telelogic is to penetrate the embedded systems market, which Sabbah described as a growth area.

One market that IBM has set its sights on is the recently coined "System-of-Systems," which focuses on the orchestration of command-and-control, communications and information systems and is being looked into for the areas of defense, space exploration and transportation.

"Embedded systems is an integral part of not only the development of products, but also this whole notion of System-of-Systems, which we believe is growing," Sabbah said.

WHAT ABOUT OVERLAP?

Theresa Lanowitz, founder of analyst firm Voke, said that Telelogic would fit well into the IBM Rational brand, as it extends IBM Rational's idea of a software life cycle into the embedded space. Even though there is a significant amount of overlap, IBM Rational will have the opportunity to pick and choose the better tools from Telelogic and its own product line, she added.

IBM was criticized by some in the industry for the way in which it handled the acquisition of Rational, as it took quite some time for the merged product lines to line up properly. According to Lanowitz, many of the complications with that acquisition had to do with the assimilation of a new brand. In contrast, she believes that the Telelogic offerings will fit into the Rational brand, particularly in areas such as requirements management and testing.

Kevin Parker, vice president of market development for Serena, claimed that with its attention focused on the Jazz collaborative development project, IBM has lost focus on some of its ALM product lines. As a result, companies like Serena and Telelogic have been able to pull ahead, and the only way for

IBM to catch up was through acquisitions, he argued.

Parker shared Lanowitz's feeling that the acquisition will boost IBM Rational's requirements management lineup.

"In the requirements man-

agement space, there are really only three vendors—Serena, IBM/Telelogic, and Borland—and IBM was starting to slip in that space, so they had to do something," he said.

Now that IBM Rational has

grown by removing a significant competitor in the ALM market, other players in the space seemed cautiously enthusiastic. Borland Software's Marc Brown, vice president of product marketing, said that in the

long term, an acquisition such as this removes straightforward ALM companies and leaves customers with no option but to deal with industry juggernauts such as IBM. At the same time, the deal opens opportunities for "neutral" ALM players such as Borland and Serena to gain customers. ■

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Ada, C Supported in Hard Real-Time Java Kit

Scorpion delivers low-latency tool set for safety-critical work

BY P.J. CONNOLLY

Making Java applications meet the rigorous demands of hard real-time applications was considered something akin to cold fusion a few years ago. But DDC-I, a developer of compilers, integrated development environments and runtime systems for embedded application development, claims that the Eclipse-based tool set it released in mid-June delivers a level of latency two orders of magnitude lower than competing real-time Java solutions.

DDC-I's history is in the aerospace and defense market, which has been a stronghold of Ada and classic C development, explained company president and CEO Bob Morris. "Ada is still out there, it's still strong, but it's not a growth market," he noted. "What the defense guys

and aerospace guys have realized for some time is that it's really hard to find Ada engineers. It's hard to find good C engineers. What the colleges are turning out are people who know C# and Java." So, instead of bucking the tide, Morris said, "what they're trying to do is move to Java."

The company's new Scorpion tools are based on the Real-Time Specification for Java (RTSJ), and allow developers to use Java with other languages, including Ada, C and Embedded C++. As a member of the Safety Critical Java Expert Group that is trimming the RTSJ for FAA-certified safety-critical applications, DDC-I also pledged its tools would support the group's work on the JSR 302 specification.

The Scorpion tools include a

builder that performs ahead-of-time Java file builds, compilers and debuggers for Ada, C, Embedded C++ and Java, and the ScorpionVM virtual machine, for real-time application execution. The company claims that its "smart linker" can reduce code size up to 80 percent by removing unwanted objects from closed systems, while its application profiler helps balance code speed with code bulk by determining the optimal mix of compiled and interpreted code.

Because garbage collection is so critical in hard real-time applications, Scorpion uses a deterministic, distributed collector, licensed from German real-time developer Aicas, which DDC-I claims reduces the overall complexity of managing garbage in memory.

Scorpion also offers what the company calls a unique ability to support existing Ada and C programs, with a wizard that maps Java native calls directly to the underlying code, with the intent of simplifying the migration of legacy programs to today's RTSJ environments as well as future JSR 302 safety-critical environments.

The Scorpion compiler takes the form of an Eclipse plug-in that works with Wind River Workbench 2.6 and VxWorks 6.4; Scorpion also offers a runtime Java platform for the Wind River OS. At release, Scorpion was available for target systems with Pentium or PowerPC processors running VxWorks 6.4, but the company expected to announce other supported platforms later this year. ■

Garmin Gives Developers Direction

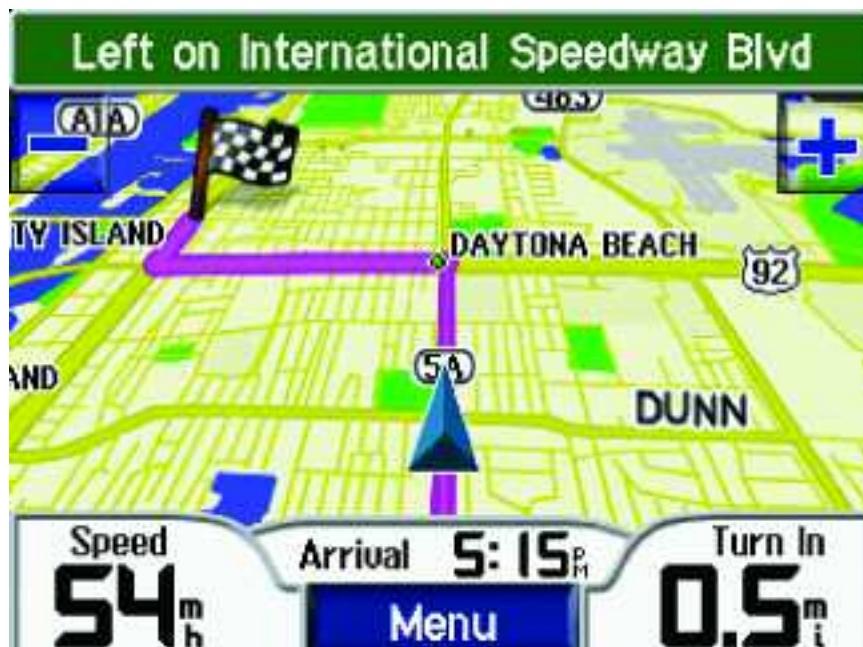
BY P.J. CONNOLLY

Garmin International announced at the end of May the launch of the Garmin Developer Web site, aimed at opening up what company spokesperson Jessica Myers admitted had been a challenging environment for third-party developers who wanted to write applications and provide data to Garmin's navigation systems.

The Web site hosts a library of APIs, toolkits and Web services organized into six core products: The Garmin Communicator Plugin API, the Garmin Fleet Management Interface, the PeerPoint messaging system, and toolkits for content and location-based services (LBS) are all available now; the MotionBased Web Services API complements the Communicator Plugin API and will be available later this year.

The Communicator Plugin API is JavaScript support code and a Web browser plug-in that allows developers to transfer location data—including maps, points of interest (POIs), track logs and waypoints—between Garmin devices and Web sites. This is intended to simplify the loading of new location data to a Garmin device.

Meanwhile, the Fleet Management Interface works with Garmin's portable navigation devices to enable dispatch, messaging, navigation and tracking



With the new developer tools, claims Garmin, deploying custom content on top of a basic map such as this in a navigation device becomes simple.

functions that allow companies to monitor essential vehicle information including cargo and fuel status, idle times and stop counting, as well as more basic information such as location, speed and direction of travel and travel distance. It also enables direct-to-driver text messaging and "new destination" prompts that allow instant rerouting.

The PeerPoint messaging system allows developers to use Garmin's location message format to send precise coordinates to phones that are running the Garmin Mobile XT application. This SMS-based interface is used with the Garmin Mobile Smartphone SDKs to build location-based enterprise-class applications for Palm OS and Windows Mobile devices.

The Garmin Content Toolkit enables the creation of secure POIs for the company's GPS systems, with the

aim of creating an ecosystem of content, such as lists of Wi-Fi hotspots, tour guides and other information that end users might want to download to devices.

The Garmin Location-Based Services Toolkit allows developers to add LBS features to Java-based mobile phone applications, incorporating the company's content delivery, navigation and search services into one platform. Finally, the forthcoming MotionBased Web Services API opens up the company's MotionBased.com physical fitness and training support service to third parties.

The new Garmin developer tools are available for free use with two exceptions: Content Toolkit users that charge their customers must give Garmin a piece of the action, while the LBS Toolkit is priced on a case-by-case basis. ■

Oracle DB Lite Adds Support For Languages

BY P.J. CONNOLLY

Oracle announced in early June the general availability of Oracle Database Lite 10g Release 3, which now allows the use of stored procedures written in C++ and C#; previous versions allowed the storing of Java-based procedures.

The release also offers a new diagnostics tool for the Mobile Server Repository, and new wizards for the Mobile Database Workbench, with updated management screens in the Mobile Manager tool.

Oracle Database Lite is designed for situations where applications run on occasionally connected devices, with periodic synchronization to an Oracle database server on the back end. The new synchronization features make it possible to synchronize data in both directions, while requiring no user intervention.

The new release of Oracle Database Lite 10g now offers practically unlimited storage space for BLOB (binary large object) data, with an upper limit of 16TB per BLOB. It also adds support for Oracle Containers for Java, used in the company's Web-to-Go Java development environment.

Pricing for Oracle Database Lite 10g is based on the number of processors in the machine running the Mobile Server—at US\$20,000 per CPU—with unlimited use of the mobile database.

It can be used with Windows Mobile 5 and Windows CE Standard SDK 5.0; Symbian 7 and 8 devices are supported via JDBC. ■

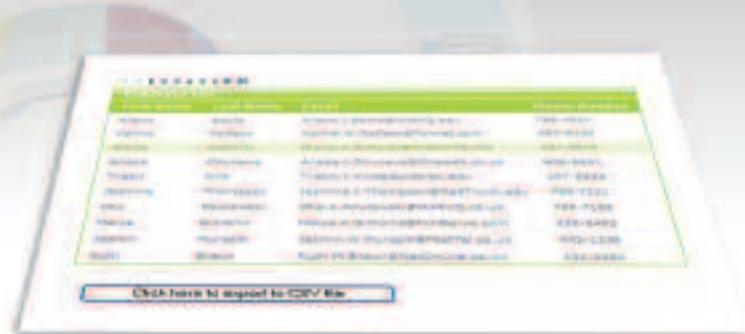


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What Can Be Done About Software Security?

Good project management, enterprisewide commitment, ongoing training seen as crucial

BY DAVID WORTHINGTON



Security flaws darken the sky over every company that encounters them. The consequences can be so severe that it is remarkable flaws continue to persist after years of stakeholders enduring the expense, pain and risks associated with insecurity. But just as a spate of failures of cast-iron bridges in the early years of Victoria's reign caused the British government to regulate railroad construction, so too may failures in software security lead to future government controls on how code is written.

Gunter Ollmann, director of security strategy for IBM's Internet Security Systems division, reported in May 2007 that ISS researchers had analyzed more than 7,000 publicly disclosed bugs in 2006. Strikingly, Ollmann estimated that the number of new code vulnerabilities could exceed 139,362 per year, increasing the perceived risk of zero-day vulnerabilities exponentially.

Software has transformed into a critical part of our infrastructure, yet its architectural standards are not on par with physical structures such as bridges. Although every situation is different, the experts SD Times interviewed for this story reached consensus on some of the most common underlying factors that beget flaws: Fundamental project management, organizational commitment and training were the most frequently discussed topics among those interviewed.

John Heimann, Oracle's program director in the global security product group, observed that most companies have not defined standards for secure coding. But management must define standards, explain what they mean to developers, and measure developers on their achievement, he said.

Tight schedules may also lead to lax software security. Rex Black, president and principal consultant of Rex Black Consulting Services, said that schedule pressures drive out a lot of things required to produce quality software. "[Management believes] that pressure is part of getting peak performance out of an organization. There is frustration at the contributor level about constant pressure to

meet dates. You can't be surprised when [developers] don't deliver fully functional or secure code."

SPI Dynamics co-founder Caleb Sima remarked that even if management conveyed requirements precisely, another problem is that the person who created those requirements needs to know security. "Product managers deal with customers, not security. There must be a dedicated guy helping the product manager."

Sima also noted that product managers drive for parity between diagrammed functionality and what is actually written. Unintended functionality, introduced when developers go above and beyond what is expected of them, spawns vulnerabilities. "QA people do not test the extra stuff...this is where security issues come into play," said Sima.

According to Sima, security must be a companywide process and be integrated into the existing development life cycle, but he acknowledged that coordinating so many actors could be the biggest obstacle. "Security goes into the whole process; it's one huge cycle and cannot be fixed at one point."

Roy Stephan, director of security business units at Ashburn, Va.-based systems integrator Intelligent Decisions, recommends rapid prototyping for requirements development to uncover inconsistencies, because the "big build" model makes fixing problems costly and difficult. He surmised that outsourcing has added to the challenge of realizing a cohesive vision for security, citing language and interaction difficulties.

PUTTING YOUR MONEY WHERE YOUR MOUTH IS

Black, Heimann and Sima all agreed that companies that are serious about security must invest more in QA tooling, understand how to use those tools effectively, and retain developers who know how to write secure code with those tools. Whether or not this is done is a matter of organizational priorities, since these activities contribute to operating expenses.

But there is a business case for black-box security testing tools, according to the U.S. Department of Homeland Security. A document published on the department's Computer Emergency Response Team Web site in December 2005 reported that the 2005 Computer Security Institute/FBI Computer Crime and Security Survey noted that the monetary loss

continued on page 38 ▶

What Can Be Done About Software Security?

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reported by 639 companies in 2005 totaled US\$130,104,542.

Oracle's Heimann explained that companies also require tools because they have to look

back to see how well they are doing, even with the correct processes in place. "If you don't measure something, you can't manage it," he pointed out.

Black said that tools can

make the process of designing secure software more efficient, noting that "most companies feel that code reviews are good, but [they] say that 'we don't have time.'" He added that

even if there are pockets of people within companies that understand both quality and security issues, there is no mechanism to propagate their knowledge, because people are

not reading one another's code.

"Even when there are code reviews, one of the things companies don't tend to invest a lot in is tools," Black said. He bemoaned that companies focus too much on static analysis and not enough on subtleties even when they make the necessary investment, which leaves bugs that could easily be discovered with tools to be discovered manually.

Intelligent Decisions' Stephan agreed that QA cannot be seen as an obstacle, and recommends that QA professionals establish best practices that pay special attention to the boundaries, where applications communicate through protocols or between libraries. He advocates peer code reviews as well: "Tools are getting more intelligent and automate the documentation process. In the end, it comes down to programmers documenting code properly, to be quickly patched by a successor" when necessary.

SPI Dynamics' Sima recommended that tools be embedded in the development life cycle to scan and identify code, and check it against policy.

"Security must be introduced as another [presumed] defect," he explained, adding, "QA people typically test for functionality and performance—not security."

TRAINING AND EDUCATION

"Problems arise when you try to implement the technology," said Black. He concurred with Sima that security testing is not well understood, stating that many QA professionals are domain experts who do not comprehend the underlying technologies. "A modest investment in tools and training can impact security," he claimed.

Black cautioned against setting immovable deadlines, saying that as the scope of testing work increases, the question to management becomes, "What time and what people?" In his estimation, an understaffed and overworked product group will permit test dates to slip in order to meet a delivery date, and may be forced to skip critical tests.

"Organizations that are sincere about quality and security improvement will make it a priority," said Black. "I am not suggesting an open-ended commitment, but companies must understand that other things [should] give way to achieving that."

Education is another part of the equation. Black, Heimann,

continued on page 39 ▶

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What Can Be Done About Software Security?

◀ continued from page 38

Sima and Stephan regard educating developers in security as a long-term solution, but Heimann had harsh words for the educational establishment, and Sima doubted that developers even care about security.

Training in secure programming is important because many information security professionals come from a networking background, Stephan remarked. "They understand networks and protocols well but do not understand what is happening inside of an application, and how code is being used and implemented behind the scenes."

Heimann was critical of the skills of entry-level developers, maintaining that most university computer science programs and training programs do not offer classes in secure coding. "They do good things, but this is basic knowledge that software engineers should have," he explained, adding that Oracle winds up bearing the expense of teaching programmers how to code securely.

QUALIFIED FACULTY NEEDED
Heimann asserted that most academics do not know how to write secure code, do not want to teach how to do so, and do not want to be called out for not knowing how. Consequently, most developers come out of school without fundamental knowledge of computer security.

Heimann suggested that accreditation standards should drive program changes that would allow qualified faculty to teach secure programming, and suggested that consumers of engineering talent, such as Oracle, ought to work together to influence universities and establish standards for the training and education of developers.

ABET is the recognized accreditor for college and university programs in computing and technology, and shapes the kinds of program offerings that institutions provide, taking its recommendations from the Institute of Electrical and Electronics Engineers.

While he acknowledged the importance of education, SPI Dynamics' Sima re-emphasized the development life cycle, saying that security cannot be enforced on the backs of developers because they lack any incentive to

write secure code. "They just do their job and most of the time won't go out of the way to do anything better than that. Are you going to get them to care about security? I doubt that."

In the not-so-distant past, it was widely understood that the phrase "beta test" presumed a certain amount of testing would take place. And tests were often limited to a core group of testers,

who would run the unfinished bits for a defined period of time and could be relied upon to file quality bug reports.

Today, many beta tests are open to mass audiences, for bet-

ter or worse. For example, MSN Live Local and Google's Gmail were introduced as betas, but many users treated the services as if they were already in production. Whether companies have found a new stealth-marketing ploy, or a way to leverage the distribution power of the

continued on page 40 ▶

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Improving Software Security With Good Practices

◀ continued from page 39

Internet, betas are more accessible than ever.

Whereas packaged software adheres to a defined build schedule, software-as-a-service applications—delivered over the Internet—may be slipstreamed with new beta code several times per day, if necessary. There is no shipping of physical media or build announcements involved; it is easier to keep the tester pool up to date.

Stephan claimed that many companies release betas into production, knowing that they can use their patching mechanisms to fix problems later. “Patch management bridges the gap between the problem and the solution by leaving a self-mechanism for updating and securing code after the fact,” he noted. “This is both good and bad: Patching is both a problem and a solution, to the extent it has become a crutch to move deadlines.”

Another one of Stephan’s concerns is code reuse—leveraging other people’s code,

which is especially prevalent in open source deployments. He argued that while it may be beneficial to “stand on the shoulders of giants” and use code that has been error-checked and vetted by the market, by incorporating this type of library into a project, one might be introducing vulnerabilities as well.

Stephan recommended that companies work to secure their underlying libraries. “The code-reuse problem is [one of] relying on underlying problems and drivers. Microsoft in particular is attacking this angle.”

Heimann also identified legacy code as a big issue, noting, “Legacy is a problem at Oracle. Our database has been around at least as long as [Microsoft’s] Windows.”

The final thing that Stephan suggested on the code front was randomization. Randomization creates process-specific randomized instruction sets. Stephan explained that through randomizing implementations in the compilation process, one version will not be susceptible

to the same exploit as another version of the same product.

For instance, if there is a buffer overflow attack against Server A, it may not take down Server B or C; the domino effect is contained.

END OF SELF-REGULATION?

In the play “Julius Caesar,” Shakespeare pointed out that the fault “is not in our stars, but in ourselves.” Our experts agreed that not all of the blame lies with corporate management: Market trends and consumer buying behavior may have relegated security to the back burner.

Consultant Black said that security flaws are symptomatic of software development in general, with companies caring more about adding new functionality and turning out more code that is less reliable. “Security has not kept up. There is more code in a cell phone today than the software that got us to the moon,” Black quipped.

Stephan added that developers have a certain number of features to get out in a particu-

lar time frame. As a result, he said, information security flaws are not discovered for months or years following a release, and are difficult to link back to a specific programmer.

Developers are also externalizing the cost of failure, Black added. “As long as organizations are able to transfer the cost onto consumers and users, they will not be fully incentivized to fix problems,” he noted. “They are transferring cost onto customers to a degree that could not be done” with more tangible goods. He cited Microsoft as an example: “They invest a lot of money into fixing problems, which is certainly laudable, but a number of my clients have had significant expense doing regression testing on patches.”

Black suggested that it might take government action to see a transfer of cost back onto companies. Homeland Security is drafting a software assurance standard that is voluntary for now, but Black said that its conditions could change. Compliance could become mandatory, he pointed

out, noting that the industry may be “one or two major software disasters away from pretty harsh government regulations.”

There is already precedent for government involvement. In the wake of several high-profile data breaches, California law makes the organization that created the problem responsible.

Although its scope is only tangential to software development, the California Information Practice Act (SB1386), a consumer privacy act, obligates companies to disclose when unencrypted personally identifiable data is or may have been accessed illegally and to adopt security procedures to limit the vulnerability of their data systems. Companies that are not compliant may be held liable in civil court.

Oracle’s Heimann said there is much work to be done and recommends security standards across the industry. “The industry has a lot of internal processes to measure the security of code,” he noted, “but is not at a point where processes can be carried across organizations.” ■

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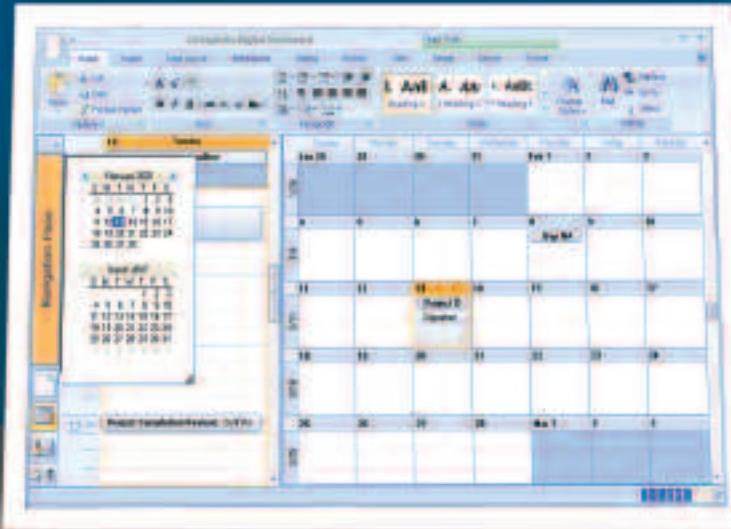
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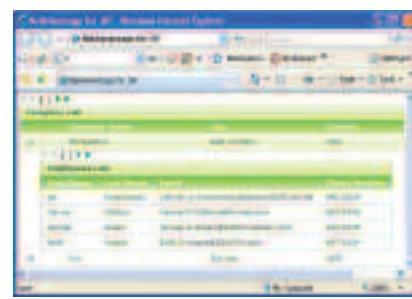
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FROM THE EDITORS

The Business Model

How do you make money with open source software? To date, most businesses have either given the software away and charged for service and support, or created communities to build software that formed the basis of commercial offerings.

Gartner analyst Mark Driver, in the SD Times podcast "Week in Review" for the week ending June 8, explained that a new breed of dot-com startups are creating so-called attribution licenses that leverage the work of the open source community but enable them to protect their intellectual property. There is a firestorm brewing, he warned, over what will be considered open source, and what will become proprietary software built by a community.

Driver's thoughts are fleshed out in our story on page 20 ("Analysts Predict Open Source Boom"), which notes that new companies are forming to support companies that rely on open source software. As Driver said, "I don't want to discount the importance of community, but community doesn't come with an SLA."

Service and support give confidence to companies that use open source software. If anything goes wrong, they can call for support, rather than post the problem on a bulletin board or blog and hope for a timely and helpful response. But what about niche software, or crowded markets such as support for Apache's top projects? Realistically, how much money can you make off of that?

What, then, to make of IBM's continued statements, going back to September 2006, that it sees its future earnings tied to the sale of software and not to services? For Big Blue to admit that its services cash cow is leveling off is surprising.

What isn't surprising is the profit margin of IBM's commercial software. Reports in the media have placed it at close to 90 percent. So its June acquisitions of security software provider Watchfire and ALM software seller Telelogic are designed to round out the Rational offerings even more completely, and to boost sales—and profits.

And the question of how to make money with open source software remains, especially since closed source is so tremendously profitable.

Closing iPhone Makes Sense

Judging by the groans reported from the Apple Worldwide Developers Conference, more than a couple of developers were unhappy that the Apple chose to significantly close off the iPhone to third-party applications by adopting a Web 2.0-only approach. But when one remembers that ease of use is Job One for Apple, and then looks at how difficult it is to install and maintain applications on those mobile phones that allow it, the company's decision makes sense.

A key factor is the state of mobile networks in the United States today. Web 2.0-based applications depend on fat, fast pipes. For most end users, a fast Internet connection is a given at the office, and it's often available at home. But when the EDGE network of AT&T, the iPhone's exclusive carrier (for now), claims average download rates of 70Kbps to 135Kbps, Apple's Web 2.0 vision looks like dial-up America Online.

Where it is available, EDGE will become increasing congested as people buy iPhones. That's going to put the burden on the carrier to improve its service, which may wipe out the sum of whatever AT&T makes on data plans, and the slender profits of in-store iPhone sales. (Plus there's a lot of the country where EDGE won't be available, now or ever.)

While Apple's choice may not please native-code developers, or customers off the EDGE grid, it makes life easier for Web developers and for Apple itself. Troubleshooting and patching is easier when everyone's running the same code. Apple saves money because it doesn't have to do as much developer handholding. Web developers have existing Web specs to write to, instead of iPhone-specific APIs and SDKs. Customers who are lucky enough to live on a fast EDGE network may be satisfied with Web 2.0. ■

More Than Skin Deep

Go back, way back, in computer history to 1990. You're sitting at a PC and you want to copy a file called letter.txt to a subdirectory called Letters. (Remember when folders were still called directories?) To perform this operation, you would type something like this:

copy letter.txt Letters

Pretty simple. In fact, some systems even provided auto-completion, so you didn't have to type the entire file name or directory name: Just begin typing the name, hit the Esc or Tab key, and the command shell would find the best match and fill in the remaining characters. Pretty cool.

Still, it didn't take long for the command line to vanish from the PC landscape. First Apple, then everyone else began to embrace the Windows-Icons-Menus-Pointer interface, aka the WIMP. The WIMP, we were assured, was more intuitive and more user-friendly.

Or was it? Let me reconstruct my thought process the first time I used a WIMP to copy a file, some 18 years ago. The procedure, which still works with WIMP file managers like Windows Explorer, went something like this:

1. Double-click on the file folder icon to open the File Manager. *Wow, a cool-looking tool for organizing my files!*

2. Open the File Manager's Edit menu. *Huh? I wanted to copy the file, not edit it.*

3. From the Edit menu, select the Copy item. *Selected it...but nothing seems to happen.*

4. Double-click on the folder that you wish to copy the file to. *OK, found it.*

5. Open the Edit menu again and click on the Paste item. *Oh... so that's how it works.*

Somehow, a simple operation grew from one step to multiple steps. Moreover, there was nothing intuitive about it. I mean, who would think of using an Edit menu to move or copy a file?

I am, of course, being unfair to the WIMP. After all, it does many things that the command line cannot. The point is, no single mode of computer-human interaction can address all user-interface challenges. Sometimes, the command line is best and sometimes the WIMP is. And for some systems, neither is best. Flatbed scanners, for example, were a mystery to many consumers until vendors wisely replaced some GUI-based controls with physical buttons like "Copy" and "Mail."

In fact, some systems do best with multiple forms of computer-human interaction, not just one. Consider, for example, an in-car infotainment unit that offers 3D navigation, real-time traffic reports, CD/DVD playback and iPod connectivity. A voice-controlled inter-

face, with its ability to minimize driver distraction, is a natural choice here. That said, some functions will always be easier to control with a quick and simple button press. Thus, the system may also need a touch screen, along with a few physical buttons.

But here's the thing. It isn't always easy to determine up front which functions should be controlled by voice, which by touch screen, which by physical buttons, and which by some combination of the above. You must work closely with users to gauge which mode of interaction (or which combination of modes) works best and then fine-tune your interface accordingly.

This calls for a software architecture that not only supports multiple forms of user interaction, but also allows any feature to be controlled by a GUI one day, and by a voice interface the next. Simply put, you need an architecture that keeps your UI design options open.

You also need an architecture that keeps your UI available. The most brilliant user interface is useless if it locks up or becomes temporarily unavailable because the system is too busy doing something else. In a network, for example, a router that fails to provide performance data because it is swamped handling alarm conditions prevents operators from taking appropriate action. Likewise, if the HMI for a chocolate factory control system stops responding whenever the system experiences a high level of motor control, then operators can't take action if a critical event occurs. Fifty thousand ruined candy bars, anyone?

The more complex the system, the more likely such problems will happen. To avoid them, system designers must choose operating systems and middleware frameworks that can provide a guaranteed amount of CPU time and memory for user-interface functions, regardless of how busy the system becomes. Such resource guarantees can also thwart denial-of-service attacks and other network-based exploits that monopolize system resources and thereby prevent users from accessing the UI.

Put simply, to create a successful interface for any complex product, you have to go beyond skin deep. You must be concerned not only with the layer that the user sees, hears or touches, but also with the underlying software that ensures the interface is constantly available and quick to respond.

Because, after all, nobody likes wimpy response times. ■

Dan Dodge



Guest View

Dan Dodge is CEO of QNX Software Systems.

THOUGHTCAST

ALMOST IMMEDIATELY after the Unlawful Internet Gambling Enforcement Act (UIGEA) was attached to an anti-terrorism bill last year, a cloud of confusion filled the air. The U.S. Congress neglected to specify what constitutes illegal gambling, but required financial institutions to cut off the cash flow to parts of the world where gambling is not prohibited. Now, the World Trade Organization has gone all in. On March 30, a WTO tribunal ruled UIGEA out of bounds, finding against U.S. restrictions on Internet gambling after the government of Antigua raised objections. Rep. Barney Frank (D-Mass.) has brought legislation before the U.S. House of Representatives to repeal the ban, and the smart money is on the "illegal" gambling operations overseas. But what's the point of all of this anyway? In the age of Internet banking and offshore hosting, how is it even possible to prevent money from being transferred?

—David Worthington

I RECENTLY PURCHASED a software music-making program called Magix Music Maker, a do-it-yourself kit perfect for a creatively neurotic person like me. I enjoy it mostly because I can build my own drum beats, and add various synthesizer sounds via drag-and-drop functionality. I'm not exactly Mozart, but I now have the ability to add my own keyboard licks, along with bass and guitar riffs. I know that some traditional folks would decry such a technology-driven method of music creation, but I have no problem shrugging them off. I've been in bands before and have found that the mentality of a band can be a fragile thing. In fact, I nearly gave



up on music altogether because of the difficulty in finding compatible musicians. Now with the help of a software program, it's a one-man show.

—Jeff Feinman

WHEN A RECENT CREDIT card statement came to the house, I noticed a charge I hadn't made. It was identified as a PayPal transaction. Now, I have a PayPal account, set up to help facilitate the sale of an extra pair of tickets I had for Springsteen at Shea Stadium in October 2003, but I haven't used it since. I called the credit card company, which told me I had to call the PayPal phone number listed on my bill. Upon getting a live person—I STILL hate the

countless requests to punch in or speak my 16-digit account number and my mother's maiden name, only to have to repeat them because his system isn't integrated with the call center system that was designed to speed up the processing of my call—I explained that I hadn't used the account. He told me right away that they, too, had identified the charge as fraudulent, and that I'd be getting a credit. He also said that someone probably got my account number and tried to use it with an online transaction, and that I should have that card canceled out and get a new one. He wouldn't tell me how he could tell the transaction was a fraudulent one, but I felt better knowing that when it comes to protecting my identity, I'm not fighting alone.

—David Rubinstein

LETTERS TO THE EDITOR

Use Your Imagination

In response to the letter to the editor "Bedazzled and Bewildered" by Charlie Clarke, published in the June 1 issue [page 54]:

I, too, have read the article written on Mr. Cohen and his inventions. First of all, may I ask why you wrote at length about hydro-foils—to the extent of giving links to other Web sites? One has to wonder whether or not you used Mr. Cohen as a roundabout way of bringing attention to those sites, for I see no mention of that type of watercraft in that particular article. Or perhaps your "out of context" imagination ran amuck. As for Mr. Cohen's USCIIIII code, you might be interested in knowing that linguists have recognized that the Hebrew language is the Root, shall we say, for the Family Tree of languages. So Mr. Cohen is right on target!

I am by profession a writer and as such would like to let you in on a major creative/intuitive secret. It is in the IMAGINATION that ALL inventions first begin. That is the human tool given to us that has taken mankind out of the

Dark Ages and into the highly developed society we now enjoy with its telephones (now that inventor was very imaginative), TVs, PCs, automobiles, aircraft, spacecraft, and of course the list goes on and on. Mr. Clarke, I would suggest that rather than insulting the intelligence/imagination of other people, which, by the way, also insulted ALL creative people who bring new things to our world, you might instead thank them for their diligence in struggling to break through the resistance of old ideas and new ignorances of those naysayers who without understanding the artist at work sees only their own blank canvas where imagination has stepped out for lunch.

To Mr. Cohen—if you are reading this—because I intuitively sense that you are onto something great, I wish you all the best in connecting with the right people to help bring those ideas to fruition. I distributed Mr. Rubinstein's column to those on my mailing list. Where would we be today without our inventors?!

Annette Morash

Vancouver Island, B.C.

Asia-Pacific to See Explosion In Developer Numbers

New figures released by Evans Data in May indicated that between 2006 and 2010, the company estimates that the global developer population will grow by nearly half, with the Asia-Pacific region experiencing the highest rate of growth at 84.1 percent, slightly more than double that of runner-up Latin America's 41.9 percent. But Latin America is expected to add the fewest developers of any region, at around 341,000—or about 108,000 fewer developers than the relatively mature North American market, according to the research firm's Global Developer Population and Demographics Report, Volume I. Europe and the Middle East are expected to add 1,654,000 developer jobs, for a relatively healthy growth rate of 36.7 percent.



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SOA Begins at the Data Layer

Those who build SOAs have one thing in common—the use of services to create an architecture that's both agile and better supports reuse. While services are a key component to SOA, the "A" in SOA stands for "Architecture," and that's where you need to begin...working from the data up to the services.

Think of SOA in layers, as with most architecture. Typically, at the lowest level you have information, either existing in databases or enterprise applications. The services sit on top of the data, both as transactional services that are more behavior-oriented and as data services that are more data-oriented. From there you move up into messaging (ESB, for instance, and it's optional), and perhaps a process/orchestration layer for forming and reforming the services into true business solutions. Of course, you have to keep track of the services using registries and repositories (SOA governance really), and security systems to ensure that no bad or dumb people access your services.

So, given that SOA is so complex, why focus on the data first? It's really about building the right foundations for your architecture, and data is the place to start. Indeed, as we build SOAs, the first step is having a clear, semantic understanding of the problem domain, and

then dealing with logical abstraction of the data, and how the data exists within services. Let's start from the beginning.

Having a semantic understanding of your problem domain means that you know information about all of the information aggregated and abstracted within your SOA, including what, where, why, who, how and validation. This, in essence, becomes the SOA metadata layer that allows you to mix and match the right data within the right services to make sure you have all of the services exposed to solve any potential business problems, now and into the future. This means that all databases and enterprise applications must be understood at the semantic levels, including their interfaces, security issues and anything else that matters to other entities that are consuming the information.

This is where most SOAs fall down, considering that the architects are just not willing to gain a complete understanding of the application semantics, and thus can't build useful services, and thus the services can't be orchestrated into solutions. So, you need to bite the bullet now, and gain a complete semantic under-

standing before moving up the stack.

So, what does this mean? It means going over data dictionaries, reverse-engineering database schemas, actually reading ERP and CRM application manuals, and other unnatural acts that most are not willing to do. Moreover, you must understand as well as record, including entering this semantic information into a

design repository, design-time governance system, or worst case, Microsoft Excel.

Next, let's think about abstraction, or the ability to reshape the underlying, typically ugly structures into something that's useful for our SOA. There are two components of this abstraction: logical and physical.

Logical data abstraction is a design-time concept, meaning that we are taking the existing physical and logical database structure and remapping it so that it has better logical order for the services we are exposing. We create general entities for particular concepts such as customer, product, sales and the like. Typically these entities are made up of many different and diverse databases that are combined together through a virtual schema that only exists within

middleware, but is an abstraction of many back-end physical databases of all shapes, sizes and types.

Next we think about the physical abstraction, or actually selecting database abstraction software, and creating the physical maps from the back-end databases to the virtual representations. Guys like Composite Software typically work well here, providing a configuration layer between the back-end physical databases, no matter how bad the designs, to a well-defined virtual schema, but with improved logical mappings of the information to meet the needs of our SOA. Moreover, since the mapping exists within the configuration layer, the physical database is not coupled to the abstraction, thus is changeable at any time, and thus provides better support for agility.

So, while the data is indeed boring to many developers, not paying attention to it means not building the proper foundation for your SOA. Those who miss this step will fall down later, claiming it was the concept of SOA that caused their issues, when really it was their own darn fault. Neglecting the information is the most common mistake being made as organizations implement their first SOAs. Don't be part of that crowd. ■

David S. Linthicum is the CEO of the Linthicum Group. Reach him at david@linthicumgroup.com.

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Those Stinking Users

Perhaps the only thing worse than a slow uptake of your application is a smash hit. Users have a way of outfoxing everything, including load tests, and the imperative to respond to existing customers can absorb all the working hours of a team that is scheduled to move on to the next version. Worse, when a product is exposed to an order of magnitude more users than planned and when the product is used more intensely than anticipated, the defect list grows rapidly, potentially panicking the team into treating the symptoms, not the causes. The resulting chaos can easily derail a team, especially one new to agile processes, where "the customer is always right" and being responsive were the values that led to the success in the first place.

Not long ago, I witnessed this very problem. I was engaged to work on the requirements and architecture of The Next Phase, which didn't seem to have a lot to do with The Current Deployment, whose two big features were a comprehensive audit trail for management and a Web-based "dashboard" that gave users a much better view of their own context. Following the principles of "You Ain't Gonna' Need It" and "Don't Repeat Yourself," the

dashboard and the auditing facilities used the same messages to request information; the dashboard, of course, stripped out the huge blobs of auditing data and presented a much-compressed summary. What was not anticipated (note the use of the passive tense to avoid blame) was that the users found the historical perspective of the dashboard very valuable and configured their dashboards to retrieve not just a day or two of history, but often everything they did in the past month. Further, once the initial group of users saw The Current Deployment, the client company went from a cautious ramped deployment to "We want to give this to everyone, starting Monday."

Wonderful, right? Well, not so much. The documents coming back to the presentation layer were huge and the response times quickly degraded. A quick look at the server's performance monitors showed that memory was thrashing terribly—it was paging data on and off the disk continuously. "Let's add RAM," was the natural "Simplest Thing That Could Possibly Work." Except, I opined, I didn't

think it could possibly work. Max out the RAM? Of course try it. But everything we were seeing pointed toward the situation getting worse, and probably in a nonlinear way, since the success of the dashboard led to further exploration of alternatives, increasing the amount of auditing data that we were storing and subsequently retrieving and then discarding.

The solution, I suggested, was that the dashboard had to work not with the general "all information" request-and-response, but with a new set of queries that were designed to contain just the summary data. They had to push the processing back into at least the middle layer (where it could be cached and shared between clients) and possibly all the way back into the database (where we could, if necessary, even adopt a summarize-on-update strategy that would minimize retrieval-time processing). Not an intimidating task, but certainly not something to be dashed off and slipstreamed into the current deployment. What they could slipstream was a flag to chop the auditing data off at the database layer, a sugges-



Larry O'Brien

Moving Past Ant

The history of computing is marked by technologies that started out as elegant solutions to a single problem and then morphed into a more comprehensive product.

Java is an example (recall that at its release, it was positioned as an "Internet language" and it enabled dynamic content via applets). So is the Web, which was at one time just another protocol for finding data on the Internet. Gopher and other protocols were seen as competing tools for locating information.

Other technologies emerge to solve a single problem and then slowly morph into legacy solutions. They don't enjoy a wider rebirth into new problem domains. Rather, they begin to obstruct progress by maintaining the status quo of their original vision in a world that is constantly advancing. One such tool, in my opinion, is Ant.

Ant was a big step forward for Java developers when it first came out in 2000. It was portable and it did away with the quirky syntax of make. Instead, it used XML, which could be read easily and validated for syntactical correctness—two steps in the right direction. Unfortunately, only two, as the Ant syntax definitely has limitations. Long scripts are hard to

follow and, at times, to untangle. This aspect is made worse by limited debugging options and make-you-crazy error messages.

The choice of XML also has drawbacks: It is not expressive, and it lacks proper built-in logical capabilities. To do anything involving logic flows, you need to drop down to the task level, write your logic there, and then reintegrate that task with Ant's "do this, do that" design. This has the effect of forking the level of abstraction: The logic should go at the higher level (the Ant file) and direct the individual tasks, not force the tasks to determine build state and make decisions from within. In essence, an effective build system probably cannot be built on XML anymore, I don't believe, especially given the complexity of builds today.

Ant does not support the concept of touch as it is found in make—an important omission. Because make compiles only those files that have been modified since the last compilation, you use a utility called touch to change the modification date of a file

should you want to force its inclusion in the build. Ant has no concept of building the minimum number of files required. This responsibility devolves to the individual tools Ant calls. However I, for one, want my build tool to be intelligent in this regard and make sure that the minimum amount of work is performed.

Then there is Ant's love-hate relationship with JUnit. JUnit is unaccountably not a default task for Ant. You have to configure it separately. Ant also made it nearly impossible to run JUnit 4 tests until release 1.7 of Ant in December of last year. This to me is an impermissible inversion of control, so to speak: My build tool should not be determining which tools I can and cannot run.

I could go on with other foibles, but I am not looking to indict a useful tool; I am suggesting that we need to move toward a scripting-type build facility with elements of modern programming languages built in. These include substantial logic and program flow capabilities, state preservation and macros, as well as debugging features. And, of



Andrew Binstock

tion that made everyone frown in distaste (and, sure enough, turned out to have unforeseen consequences).

The development manager was downcast. Here he had supervised a successful development cycle, resulting in on-time delivery of a product that delivered more value than the customer had anticipated. The decisions made along the way were, individually, reasonable: I hadn't designed the dashboard messages, but if I had, I would have agreed, "Yeah, summarizing the data is a presentation-layer concern." They had done load testing and everything had looked great—according to the use cases they'd developed for. Now, suddenly we were looking at delaying The Next Phase for a six-week sprint that felt like we were fixing screw-ups, not just with the dashboard issue, but because the success of the system brought myriad trivial but time-consuming defects (I've never seen so many "TO DO" comments flushed out so fast).

As we wrapped up a multihour session that had hardly touched upon The Next Phase, I could see the frustration on his face and I knew what he was thinking: Software development would be so much easier if it weren't for those stinking users. ■

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at www.knowing.net.

course, this language should allow me to run any task without having to depend on other developers to write functionality for me.

To Ruby-aware readers, this description sounds somewhat like Rake, and in fact, Rake fills many of these goals. However, I want a Java solution for Java products and for the time being I prefer a Java-hosted build system because of the much wider platform support Java enjoys. One possible solution is JRake, which is a Java version of Rake. It recently was folded into the Raven project (raven.rubyforge.org) While this project is heading the right way, many developers will feel that the Ruby tinge is a curious distraction (wrapping jar files into Gems is an odd thing for a pure Java developer).

Gant (groovy.codehaus.org/Gant), which uses the Java-based Groovy scripting language, is another possibility, although the end result is an Ant file, so some of the key limitations are preserved. There are a few other build systems, but they are mostly modeled on make or Ant. What I think we need is a whole new solution. And as builds become increasingly complex, this need will quickly become urgent. ■

Andrew Binstock is the principal analyst at Pacific Data Works. Read his blog at binstock.blogspot.com.

Living on the Edge

Life on the edge is dangerous. It's exciting and unpredictable. It offers new and unexpected twists.

Some people enjoy living on the edge. Don't count most development managers among them.

Applications that need to support Web services, integrate with outside applications and stay in sync with a back-end data system live on the edge of the enterprise, tethered by ropes that seem to constantly unravel. The edge is where all kinds of trouble can arise. But it's also where much innovation springs, as organizations look to gain control of the chaos that breeds there.

To control the edge, you must be able to control change, because that's what the edge is all about. Paulo Rosado, CEO of Europe-based change management solutions provider OutSystems, has studied IT life on the edge for years, and he believes two things are needed to win at the edge: an agile approach and

Industry Watch



David Rubinstein

"Then, you iterate again." Instead of doing large code merges every few weeks, they should happen every few hours so the team can face problems incrementally, and not in one gigantic iteration. "If you try to shoehorn waterfall processes here, most times developers will be idle," he noted, as they wait for new requirements and a firm codebase from which to work anew.

Once the business side realizes how responsive the organization is to change, the scope of requests is smaller, and if something crucial arises that needs to be tackled, there is confidence the team can get it done in weeks,

cheap transfer of knowledge.

Rosado learned this years ago, when he tried to implement a solution that would enable transactional applications to function on extranets. "We never got the thing into production," he admitted. "We could never close the scope up front." What he learned is that the constant addition of features during development is part of an ongoing process, and that it's OK to make mistakes in scope so long as you can make changes cheaply. "For us, it's not the building that's fundamental; it's the change."

Business-savvy developers understand the need for agility. "They want to get something out and get immediate feedback," Rosado said.

instead of months.

But this flexibility cannot be achieved without thorough knowledge of the code. "A lot of the complexity of change has to do with knowledge transfer," Rosado said. "The guy who built it isn't always the guy who has to change it."

Rosado told of a company that hired a consultancy to write its code, and when it came back, the company would have its people reverse-engineer it to gain understanding and control. Consultants, Rosado opined, don't like when companies want to know what's going on in the code. "Control of the code is what keeps the customer locked in," Rosado said. "They hold customers hostage with unwieldy code, and ownership goes to the service provider. The product road map is now not in anyone's control. With cheap knowledge transfer, you gain flexibility. Now, you can outsource, or offshore, and retain control."

Another of his anecdotes involved an invoice approval system. Cost center directors had agreed to move from paper to a digital process that allowed them to signal their approval for an expenditure by typing a password into a browser box.

When Rosado's team rolled out the new system, it became clear that most of these directors wanted to retain the process of having their personal assistants work up an approval form for them to sign. So, some of the directors gave their passwords to their assistants, who now suddenly could approve spending up to €25,000 without any control. Because of the agility of the solution, a new version, which created a new role allowing the assistants to see everything the director could see and prepare an electronic form for digital signature, was completed in three weeks.

That's life on the edge. ■

David Rubinstein is editor-in-chief of SD Times.



BUSINESS BRIEFS

Dundas Software's data visualization tools will ship as a native part of **Microsoft**'s SQL Server 2008, under the terms of a June 4 announcement that Microsoft has acquired Dundas' intellectual property. Dundas has license to sell its Dundas Chart solution in advance of SQL Server's general availability next year, according to the announcement of the deal. Going forward, Dundas Chart will be jointly developed, but Microsoft has the final say on development, said Dundas president Troy Marchand. New integrations will be included when the SQL Server release ships. "In respect to the deal, people can use tomorrow's technology today. What we are selling today will be in the next version of SQL Server 2008. There is a complete migration path, and investments will not be lost tomorrow," said Marchand.... Software-as-a-service provider **OpSource** has raised US\$15 million in capital through a Series D round of financing, led by **Crosslink Capital** with participation from **Artiman Ventures**. OpSource will use the funds to build out On-Demand, its Web application delivery platform. The round of financing brings the total raised to \$47 million. "Crosslink invested in OpSource because it has established a highly differentiated

position as the leading provider of infrastructure and application services for Web-based solutions. OpSource has an exceptional management team, both strategically insightful and operationally strong. We expect great things from the company," said Gary Hromadko, Crosslink Capital venture partner and new member of the OpSource board of directors.

EARNINGS: The **SCO Group** reported second-quarter fiscal 2007 revenue of US\$6.014 million, down from \$7.126 million from the prior year, continuing a trend of downward-spiraling revenues. For the quarter, the company posted a net loss of \$1.143 million, which marks an improvement from the loss of \$4.694 million from the same quarter a year earlier. The company attributed the reduction in loss to lower operating costs and fewer expenses relating to the company's legal challenges regarding its Unix intellectual property. The company claims the decrease in revenue is attributable to competitive pressures on its Unix business, apparently discounting the ill will it has generated in the industry with its legal maneuverings. ■

EVENTS CALENDAR

Web Design World

July 9-11

Seattle

1105 MEDIA

www.ftponline.com/conferences

Open Source Convention

July 23-27

Portland, Ore.

O'REILLY MEDIA

conferences.oreillynet.com/os2007

SCO Tec Forum

Aug. 5-7

Las Vegas

SCO GROUP

www.sco.com/2007tecforum

SIGGRAPH

Aug. 5-9

San Diego

ASSOCIATION FOR COMPUTING MACHINERY

www.siggraph.org/s2007

LinuxWorld

Aug. 6-9

San Francisco

IDG WORLD EXPO

www.linuxworldexpo.com

SHARE

Aug. 12-17

San Diego

SHARE

www.share.org

Actuate International Users Conference

Aug. 13-15

Las Vegas

ACTUATE

www.event-project.com/evo/AIUC2007

Agile 2007

Aug. 13-17

Washington, D.C.

AGILE ALLIANCE

www.agile2007.com

BEAWorld

Sept. 10-12

San Francisco

BEA SOFTWARE

www.bea.com/beaworld

VMworld 2007

Sept. 11-13

San Francisco

VMWARE

www.vmware.com/vmworld

Secure

Sept. 12-13

Development World

Alexandria, Va.

SDW

www.secureddevelopmentworld.com

VSLive

Sept. 16-19

New York

1105 MEDIA

www.ftponline.com/conferences/vslive

Dreamforce 2007

Sept. 16-19

San Francisco

SALESFORCE.COM

www.salesforce.com/dreamforce

High Performance on Wall St.

Sept. 17

New York

FLAGG MANAGEMENT

www.highperformanceonwallstreet.com

Software Test & Performance Conference

Oct. 2-4

Cambridge, Mass.

BZ MEDIA

www.stpcon.com

EclipseWorld

Nov. 6-8

Reston, Va.

BZ MEDIA

www.eclipseworld.net

For a more complete calendar of U.S. software development events, see www.bzmedia.com/calendar. Information is subject to change. Send news about upcoming events to events@bzmedia.com.

Navigating APPLICATION LIFECYCLE MANAGEMENT



"THIS IS NOT GOOD"

FIG. 9.—CAPTAIN BLINDSIDED AS FOG SETTLES OVER DEVELOPMENT PROCESS.
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How BYU reduced costs,
shortened budget cycles,
and gained visibility

TWO WORLDS COLLIDE
The value of combining
PPM and ALM:
The PMO perspective

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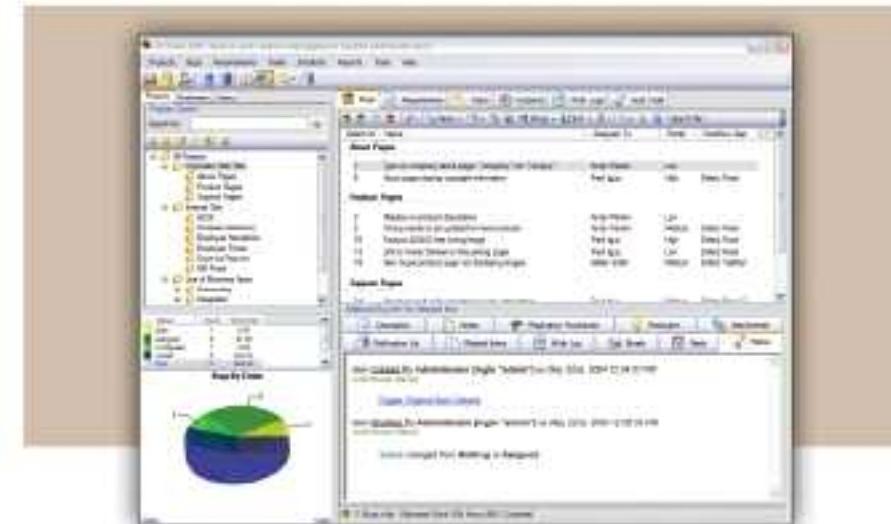
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